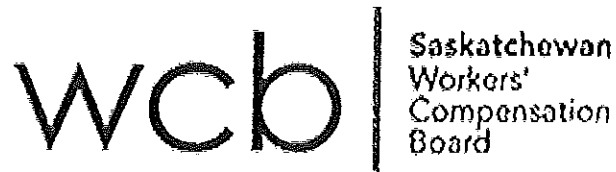


Eckler



**ASSET LIABILITY STUDY
BASED ON FINANCIAL RESULTS
AS AT DECEMBER 31, 2014**

June 15, 2015

Prepared by:

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Section 1: Executive summary

This document outlines the results of our asset liability study based on the financial results as at December 31, 2014 of the Saskatchewan Workers' Compensation Board (WCB).

In summary:

1. The WCB's financial position as at December 31, 2014 indicated that assets were more than sufficient to cover its liabilities, with a funded position of \$733,733,000.
2. The two major components of the WCB's financial position are the investment portfolio on the asset side and the benefit liabilities on the liability side, which are both subject to significant risks.
3. Key principles guiding the funding of the WCB include fairness (premiums paid by the current generations of employers are well aligned to the costs generated by them), collective liability, predictability of premiums, financial security and ease of administration, ease of understanding and transparency.
4. Main parameters and comments on the WCB current funding policy:
 - Full funding basis: consistent with all Canadian boards.
 - Disaster reserves, parts 1 and 2, and Second injury and re-employment reserve, each at 1% of benefit liabilities are established.
 - Injury Fund increased or decreased by the operating surpluses and deficits of the WCB, and appropriation of funds to or from reserves and change in other comprehensive income.
 - Targeted funding range for the Injury Fund at 105% to 120% of previous year's benefit liabilities, and unrealized gains and losses on investments not considered.
 - At WCB's discretion, if Injury Fund falls below 103%, or rises above 122%, the WCB may respectively increase the premium rates to replenish the Injury Fund, or give back refunds to employers, both over a period not to exceed 5 years: some Canadian boards provide for automatic actions when the funding ratio falls outside the target range.
5. The benefit liabilities and funding percentages since 2009:

Table 1.1 - WCB's funded position (funding percentage) from 2009 to 2014

Capital management	2009	2010	2011	2012	2013	2014
Benefit liabilities (\$ millions)	995.7	1,021.3	1,013.9	1,005.4	1,085.5	1,151.9
Funding percentage	111.2%	111.5%	119.0%	117.1%	119.3%	132.2%

As observed, the funding percentage has, for the first time since 2009, fallen outside the 105% to 120% range at the end of 2014.

6. Premiums paid by employers should cover the estimated current and future costs of current year injuries and all expenses. However, experience gains and losses are inevitable as actual costs will be different from those estimated and the board's funded position will present an accumulated surplus or deficit. Sources of gains and losses include investment returns, inflation or other assumptions such as disability recovery or health care utilization; in addition, gains and losses can also result from accounting or actuarial changes or benefit modifications.

7. The Saskatchewan average premium rate at \$1.46 per \$100 of assessable payroll in 2015 is among the lowest in Canada.
8. The different components of the 2015 average premium rate are as follows:

Table 1.2 - Average 2015 premium rate at the WCB

Components	2015 rate
Full funded cost of claims	\$1.08
Administration and other expenses	\$0.38
Premium adjustments	\$0.00
Total	\$1.46

The \$1.08 rate used for the full funded cost of claims compares with an average experience rate of \$1.150 over the 15-year 1999-2013 period, and averages of \$1.025 and \$0.935 over the most recent 10-year and 5-year periods respectively.

9. In view of the emerging claim cost experience and its current level of funding, we recommend that the WCB reviews its rate setting model for the determination of the premium requirements.

10. The most important risk factors for the WCB include:

- Funding percentage or FMV asset/liability ratio: The possibility for the funding percentage to fall below a certain level (e.g. 103%) constitutes a very important risk factor for the WCB. Similarly, as the funded position is determined on a market value basis, the possibility for the FMV asset/liability ratio (total assets over total liabilities) to fall below a certain level (e.g. 100%) constitutes also a very significant risk factor for the WCB.
- Level and volatility of the average premium rate: To be fair, premiums paid by the current generations of employers should be aligned to the costs generated by these generations of employers (required premium rate); a legitimate objective is also to ensure stability in the average premium rate. The possibility of having to implement major rate increases constitutes an important risk factor.
- Real and nominal rates of return of the Fund: The nominal and real return assumptions underlying the actuarial valuation of the benefit liabilities are respectively 5.5% and 3% per annum. The possibility for the nominal and real rates of return to fall below the actuarial nominal and real discount rates is also an important risk factor for the WCB.

11. A stochastic model has been used to illustrate the complex financial risks inherent at the WCB and their financial impact on the long term funding of the WCB and on the premiums that will be paid by Saskatchewan employers. Projections over the 2015-2024 period have been prepared to visualize the financial evolution of the Injury Fund and of pertinent financial parameters over the next several years. A number of assumptions have been used, essentially consistent with those used for the actuarial valuation of the benefit liabilities.
12. For projection of the estimated costs in future years, we have used WCB's recent experience for the full funded cost of claims as well as for the estimated administration and other expenses.
13. Our projections have been prepared using the actual asset mix allocation of the WCB portfolio as at December 31, 2014 as the starting point, transitioning to the revised long term asset mix policy, including allocations to global high yield bonds, Canadian and global low volatility equities, as well as global small capitalization equities, along with an increase in real estate investments.

14. At the median level of our projections, the nominal and real rates of return over a 10-year horizon are respectively 5.5% and 3.4%, with a significant volatility. The 5.5% nominal rate is the same as the rate currently used for the actuarial valuation, while the 3.4% real rate of return is higher than the investment policy objective of 3% (also the real discount rate assumed for actuarial valuation purposes).
15. The first set of projections of all the components of the assets, liabilities, revenues and expenses of the WCB from 2015 to 2024 has been prepared assuming a surplus distribution for 2015 at \$78.9M; in the future, we have assumed that 50% of the excess over 120% would be distributed in the following year when the funding percentage is above 122% and that a special replenishment of the Injury Fund would be done through premium increases over 5 years when the funding percentage falls below 103%. We also have studied the impact of different surplus distribution bases, where 20%, 75% and 100% of the excess over 120% would be distributed in the following year.

Statistics on surplus distributions and special levies, and the projected statistical distribution of the WCB's funded position as measured by the funding percentage during the projection period indicate that:

- The funding percentage is currently relatively high as are the unrealized gains on investments. Consequently, the probability to have a surplus distribution remains high during the projection period and the probability of a special levy (or premium rate increase) is very low.
- Within the next 10 years, there is a 61.6% chance that a surplus distribution will be made every year and a 1.3% chance that the funding percentage will fall below the 103% level at least once and that a special levy will have to be made.
- The average surplus distribution, when one occurs, is relatively stable during the projection period, at about \$0.32 per \$100 of assessable payroll. The average special levy, when one occurs, is increasing slightly during the projection period, but is at a lower level (at \$0.06 per \$100 of assessable payroll in 2025) than the average surplus distribution.
- The funding percentage is slightly decreasing at the median level, but would remain above 120% throughout the projection period even under the unfavourable scenarios. Under favourable scenarios (one chance out of 4), the funding percentage would reach 135%, and even 146% under very favourable scenarios (one chance out of 20) in 2024.
- Because of the volatility of investment returns and inflation, the funding percentage could decrease below the 122% level, which would stop surplus distributions, and would even fall to the 111% level under very unfavourable scenarios (one chance out of 20) in 2024.
- At the median level, the WCB's funding percentage is decreasing progressively over time as the surplus distributions at 50% of the excess over 120% exceed gains from different sources, such as those resulting from investment income on the Injury Fund, from the inflation assumption (the inflation rate generated by the model is lower than the 2.5% valuation assumption), and from the average premium rate being higher than the rate required to pay for current year injuries and operating costs in our model.
- The funding percentage is much less volatile than the ratio of the total assets, based on the fair market value (FMV) of the investments, over the total liabilities (referred to as the FMV asset/liability ratio in this report).
- The FMV asset/liability ratio is quite volatile, in particular because of the volatility of assets: assets are recognized at market value and are directly affected by the volatility of market rates of return.

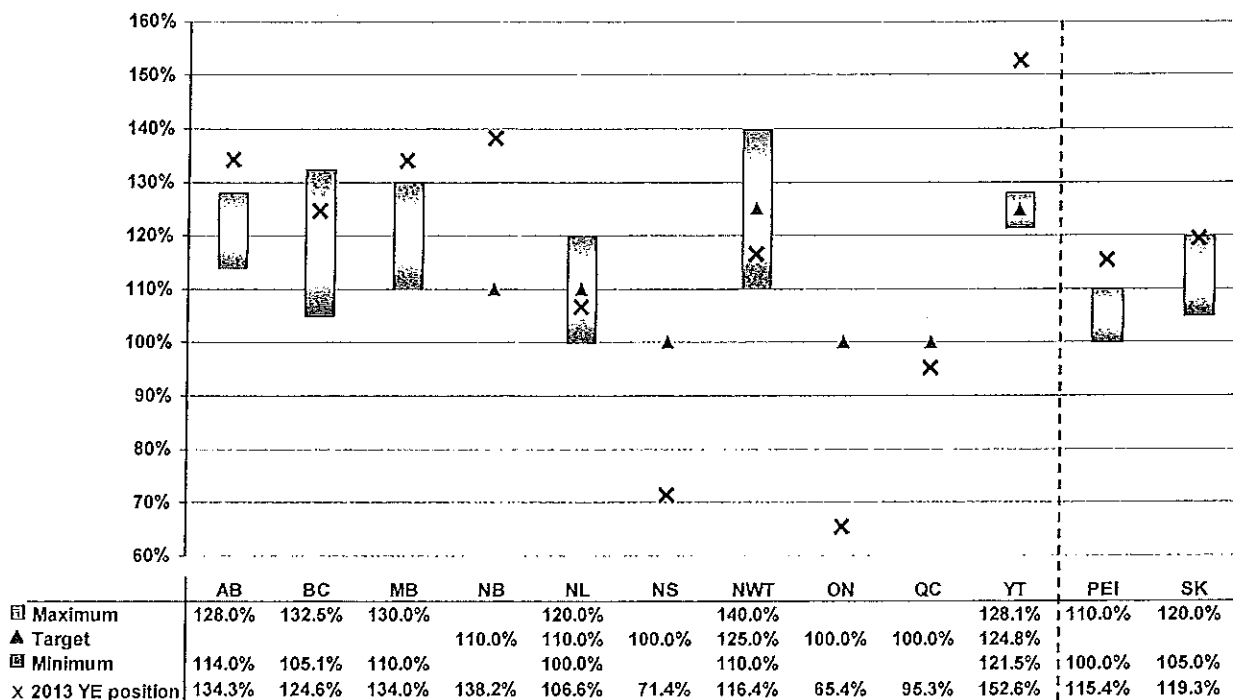
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| <p>16. Recent changes to the long term asset mix policy will have the intended objective of reducing volatility of the portfolio returns while maintaining an expected rate of return equivalent to the previous asset mix. The revised asset allocation was utilized in the projections and does not appear to impact the WCB's ability to fund its obligations.</p> |
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17. There are financial risks and the funded position should be regularly monitored by the WCB.
18. The benefit liabilities are the main component of the liabilities in Canadian boards. Benefit liabilities are calculated on a long term going concern basis using best estimate assumptions; usually, the assumptions do not include significant margins for adverse deviations.

In comparing the financial position of Canadian boards at year-end 2013, two parameters are important to consider: the real discount rate and the inclusion of an allowance for long latency occupational diseases in the benefit liabilities. As the WCB uses a real discount rate (at 3.25% at year-end 2013 and 3.00% at year-end 2014) lower than the Canadian average (at 3.41% at year-end 2013) and considered the liability for long latency occupational diseases (through a reserve of essentially the same amount at year-end 2013), while two other Canadian boards did not include such provision, the WCB appears to have a prudent approach in determining the benefit liabilities.

19. The funding target of Canadian boards based on 2013 results is illustrated below:

Funding Target at Year-End 2013



20. The results are shown separately for the Prince Edward Island (PEI) and Saskatchewan (SK) boards as their funding policy is based respectively on a smoothed value of assets and on assets excluding unrealized gains and losses on investments. Using assets on a market value basis, the FMV asset/liability ratio of these boards at year-end 2013 was 135.3% for the PEI board and 148.8% for the Saskatchewan board.
21. Most boards provides for a funding range in their funding policy. Excluding the three boards that were underfunded at 2013 year-end and the New Brunswick (NB) board that had no range, the average funding range varies between a minimum of 108.2% and a maximum of 126.1%. The funding ranges of the PEI and Saskatchewan boards are at a lower level as their funding percentages are less subject to fluctuations than the FMV asset/liability ratios based on a market value basis.

22. We have studied the impact of different surplus distribution bases starting in 2015 and in future years:

Table 1.3 - Surplus distribution bases

Scenario	Amount in 2015	Amount in 2016 and after
A	\$28.2M	20% of excess over 120%
B	\$78.9M	50% of excess over 120%
C	\$105.7M	75% of excess over 120%
D	\$140.9M	100% of excess over 120%

23. In our opinion, considering the current financial situation of the WCB and the amount of unrealized investment gains, the surplus distributions in the future should be made over a shorter period than 5 years (or higher than 20% of surplus being distributed).

24. With surplus distributions at a higher percentage:

- The average amount of surplus distributed increases, but, over time, the amount expected to be distributed will be similar, and even lower with a higher percentage of surplus distribution.
- The risk of having to implement a premium increase to replenish the Injury Fund is higher, as is the risk for the WCB to be underfunded.

25. The WCB should determine the percentage of surplus distributions in considering its risk tolerance level. As the level of risk could be modified as a result of a review of its rate setting model, one possibility would be to set initially the surplus distribution at \$78.9M in 2015 and at 50% of the excess over the funding target of 120% thereafter, and to finalize this level once the study of the rate setting model has been completed.

26. We have studied the impact of two alternate financing strategies:

- At 2015 year-end, reduction by 0.25% of the assumption for nominal rate of return used in the valuation of benefit liabilities, to 5.25% per annum.

The liabilities would increase, the funding percentage and the average amount of surplus distribution would initially be lower, but the differences would become essentially non-existent after 2019. In summary, the financial risks of the WCB would not be materially affected.

- At 2015 year-end, elimination of reserves and change to the funding policy range to 107% to 122%, a 2% increase from the 105% to 120% range.

The funding percentage would initially increase by 3%, reducing at 2% by 2017, the average amount of surplus distribution would initially be higher, but the difference would become essentially non-existent after 2019. In summary, the financial risks of the WCB would not be materially affected.

27. As the amount of benefit liabilities includes the future costs for claims that will be subject to cost relief, the Disaster and Second injury and re-employment reserves should be eliminated, and the circumstances that give rise to cost relief for employers should be maintained and determined through a cost relief policy. To maintain a similar level of protection against risks and uncertainties for the WCB, the funding range should be increased by 2% to 107% to 122%.

28. The potential implementation of an accounting change to IFRS 4 on insurance contracts could significantly influence the measurement of the benefit liabilities, where the rate used to discount claim benefit cash flows would reflect market rates and cash flows could include a risk adjustment. The final standard has not yet been released; effective date could possibly be 2020.

29. Based on our understanding of the revised Exposure Draft published in June 2013, the discount rate used to determine the benefit liabilities would be determined using the market risk free rate plus a liquidity premium, estimated at 0.50%, and would vary at each future year-end, instead of a fixed long term assumption as it is currently done. A risk adjustment dealing with the risks inherent in the future cash flows could also be added to the benefit cash flows. The methodology to be used for determining the risk adjustment is very unclear at this point; for our projections, we have assumed a 0.50% reduction to the discount rate for measuring its impact.
30. The impact of the risk adjustment is an increase to the liabilities. We strongly emphasize that this is only a representative value of the risk adjustment as the actual modelling has not yet been developed and the appropriate level for the risk adjustment will need to be determined.
31. Projections of financial results assuming implementation of the use of a market discount rate in 2020 instead of a fixed long term assumption would have the following impact:
- The liabilities would increase on implementation of the revised standard, as the real discount rate would reduce from the current 3.0% assumption to about 2% (equivalent to the risk free rate). At the median level, the liability increase will be \$186 million in 2020, decreasing to \$142 million in 2024 with the projected increase to the discount rate.
 - This change would result in an approximate 16% drop in the funding percentage and the FMV asset/liability ratio, which is based on the market value of assets, at the median level in 2020. This reduction decreases over time, and at the end of the projection period, the funding percentage and the FMV asset/liability ratio are only about 2% lower than under the current accounting basis at the median level.
 - As the funding percentage is not based on the market value of assets, moving to a market-related discount rate would increase significantly the volatility of the funding percentage.
 - With the volatility of liabilities adding to the volatility of assets, the FMV asset/liability ratio would also be more volatile, but not significantly, because of some synchronization of movements between assets and liabilities.
 - The risk that the FMV asset/liability ratio decreases below 100% would increase with a market discount rate.
 - The impact on the average required premium rate is estimated initially at about \$0.07 per \$100 of assessable payroll, decreasing to \$0.04 at the end of the projection period.
32. The implementation of an accounting change to IFRS 4 on insurance contracts in 2020 could influence negatively the funded position of the WCB and the WCB should monitor closely this potential change.
33. We recommend that the WCB review its funding policy and consider the treatment of unrealized gains and losses on investments as well as the impact of a market related rate of return on the benefit liabilities and claim cost expense.

Section 2: Introduction

The objective of this document is to outline the results of our asset liability study based on the financial results as at December 31, 2014 of the Saskatchewan Workers' Compensation Board (WCB).

General

In accordance with *The Workers Compensation Act, 2013 ("the Act")*, the WCB provides benefits and services to workers who are injured at work; these benefits and services are financed by premiums paid by employers. Premiums are based on collective liability and they are collected each year to cover the current and future costs associated with workplace injuries anticipated to occur during the year. The remainder of any premiums not used to pay current costs is set aside in the Injury Fund, to provide for future costs. Ideally the amount in the Injury Fund would be sufficient to provide for future costs of claims that occurred in the past. In this case, the WCB would be considered fully funded. However, because actual experience is different than what was assumed in establishing premiums, the Injury Fund may at various times be inadequate or excessive relative to expected future costs.

Current financial situation

The WCB statement of financial position as at December 31, 2014 is presented below:

Table 2.1 - Statement of financial position

Financial position as at December 31, 2014	(thousands of \$)
ASSETS	
Cash	102,514
Receivables	23,190
Investment portfolio	1,928,142
Property and equipment	10,969
Other assets	26,659
Total assets	2,109,474
LIABILITIES	
Payables and accrued liabilities	30,400
Benefit liabilities	1,151,909
Annuity fund	193,432
Total liabilities	1,375,741
FUNDED POSITION	
Injury Fund	703,248
Accumulated other comprehensive income (loss)	(4,072)
Reserves	34,557
Funded position	733,733
<i>FMV asset/liability ratio</i>	<i>153.3%</i>
Unrealized gains (losses) on investments	331,949
Net Injury Fund	371,299
WCB's funded position (funding percentage)	132.2%

As indicated, at the end of 2014, the assets of the WCB were more than sufficient to cover its liabilities and the board was 153.3% funded using the fair market value of investments, with a funded position of \$733,733,000.

In addition, the funding percentage of 132.2%, which is calculated in accordance with the funding policy as the benefit liabilities, plus the balance in the Injury Fund, excluding unrealized gains and losses on investments, divided by the benefit liabilities, exceeded the upper limit of the WCB's funding policy at the 2014 year-end and will result in a surplus distribution in 2015. The funding policy is detailed in Section 3.

The two major components of the WCB's financial position are the investment portfolio on the asset side and the benefit liabilities on the liability side.

The investment portfolio is comprised of fixed income, equity and inflation sensitive investments and is subject to investment risk.

The WCB's independent actuary annually prepares the valuation of the benefit liabilities; this valuation estimates the provision required for the future payments of benefits and future administration costs on account of workplace injuries that occurred before the valuation date, as well as known long latency occupational diseases that will occur in the future as a result of past exposures. The measurement of benefit liabilities requires the actuary to make estimates and assumptions for a number of factors; actual benefit costs and changes in these estimates and assumptions could have a significant impact on WCB's operating results.

Premiums

Premiums paid by employers in 2015 cover the costs, current and future, associated with workplace injuries anticipated to occur during the year as well as the WCB operating expenses. With an average premium rate of \$1.46 per \$100 of assessable payroll and payroll at about \$21,207M, employer premiums are estimated at \$310.2M in 2015.

Questions to be addressed

Some questions arising from the current funding situation of the WCB (a funded position of \$733.7M and a FMV asset/liability ratio at 153.3%), can be expressed as follows:

- From the employers' perspective: Why is the WCB holding so much excess money, as it would be better invested by Saskatchewan companies? The WCB has the power to increase premiums in the future if eventually required.
- From the workers' perspective: Why would the WCB reduce the employer premiums or distribute surpluses as the benefits must be fully secure? There is a risk that benefits could be reduced if the WCB becomes underfunded.
- Are current premiums at an average rate of \$1.46 fair to employers? How do they compare with the average premium rate of other Canadian workers' compensation boards?
- Is the revised long term asset allocation appropriate to WCB's benefit liabilities?
- What is the risk that the WCB has to increase the premiums over the next 5 years? Over the next 10 years?
- How the funding policy of the WCB compares with those of other Canadian workers' compensation boards?
- What is the potential impact of different surplus distribution bases?
- Do we require the Disaster reserves, parts 1 and 2, and the Second injury and re-employment reserve? Are their current levels, each at 1% of benefit liabilities, appropriate?

- What is the evolution of the funding percentage under the “expected” economic scenarios? Under favourable scenarios? Under unfavourable and very unfavourable scenarios?
- What is the potential impact of a change in the nominal rate of return assumption used to value the benefit liabilities?
- What will be the impact on the WCB’s financial position if new IFRS accounting rules become effective at year-end 2020?

This document

This document will address these questions.

To determine a proper funding policy is quite challenging in a workers’ compensation board environment considering the overall risk configuration to be managed: the investment and financial risks as well as the different types of risks affecting the board liabilities.

Before identifying the components of the premiums charged to employers in Section 4 and illustrating the risks present at the WCB in Section 5 of this document, we will present the key principles guiding the development of a funding policy and provide some comments on the funding policy currently in place at the WCB in Section 3. The different approaches used with respect to their funding policy by Canadian boards are illustrated in Section 6.

We will present the impact of adopting different surplus distribution bases in Section 7 as well as alternate financial strategies in Section 8. Before concluding in Section 10, we have estimated the effect of a potential change to accounting basis in 2020 and the results are presented in Section 9.

Section 3: Guiding principles for funding and current WCB funding policy

The Canadian workers' compensation system continues to be based on the principles stated a century ago by Sir William Meredith: collective liability, wage-loss approach to calculating benefits, no fault insurance, universal coverage, industry funding, state administration and security of payment.

The financing of the WCB is done in considering its unique nature of a monopoly providing statutory benefits and functioning like an insurer, and follows well-defined rules, which are acceptable to all stakeholders: employers, workers and government. These rules are set in a document known as the "funding policy" and are established in considering a number of principles.

Guiding principles for a funding policy

The following key principles guide the development of a funding policy:

- **Fairness:** that premiums paid by the current generations of employers are well aligned to the costs generated by these generations of employers.
- **Collective liability:** that the principle of no-fault insurance and collective liability among employers is respected.
- **Predictability of premiums:** that the system generates a level of predictability and stability in premium costs that employers can rely on.
- **Financial security:** that the injured workers and beneficiaries are reasonably assured that the benefits will be paid as promised.
- **Ease of administration, ease of understanding and transparency:** that the funding system operates efficiently and effectively, and that it is simple enough in design that most employers and injured workers can see that the principles of fairness, collective liability, predictability of premiums and financial security are operating effectively.

The funding policy provides guidance to WCB management in maintaining a financially stable system that appropriately balances these sometimes competing principles.

Current WCB funding policy

The basis for the financing of the WCB is found in the Act, in particular Part V on Injury Fund (sections 114 to 133) and Part VI on Assessments (sections 134 to 160). Some excerpts:

114 - Fund

- (1) *The Injury Fund is continued.*
- (2) *All moneys collected by the board from employers pursuant to this Act are to be credited to the fund.*

116 - Fund to be maintained to meet all payments

- (1) *The board shall at all times maintain the fund so that, with the reserves provided for in subsection 134(2) but exclusive of the special reserve fund mentioned in section 145:*
 - (a) *the fund is sufficient to meet all the payments to be made out of the fund with respect to:*
 - (i) *the cost of the administration of the occupational health and safety program; and*
 - (ii) *compensation as it becomes payable; and*

- (b) *the employers in any class are not unduly or unfairly burdened in future years with payments to be made in those years with respect to costs and injuries that have previously occurred. ...*

134 - Levy of assessment

- (1) *Subject to subsection (4), in every year, the board shall levy an assessment on the employers in each class of industries an amount based on any percentage of the employers' payrolls or on any other rate, or an amount specified by the board, that, allowing for any surplus or deficit in the class, the board considers sufficient to pay:*
- (a) *the compensation with respect to injuries to workers in the businesses within the class;*
 - (b) *the expenses of the administration of this Act; and*
 - (c) *the cost of the administration of the occupational health and safety program for that year.*
- (2) *The board shall maintain a reserve fund of amounts that the board considers necessary:*
- (a) *to pay:*
 - (i) *the compensation payable in future years with respect to claims in that class of industries occurring in those years; and*
 - (ii) *the cost of the administration of the occupational health and safety program in future years; and*
 - (b) *to prevent the employers in future years from being unduly or unfairly burdened with payments that are to be made in those years with respect to injuries that have previously occurred and with respect to the cost of the administration of the occupational health and safety program. ...*

145 - Special reserve fund

If the board considers it appropriate to do so, the board may add to the assessment for any class or for all classes of industries a percentage or amount for the purpose of raising a special reserve fund to be set aside to meet the loss arising from any disaster or other circumstance the liability for which would, in the opinion of the board, unfairly burden the employers in any class.

150 - Formation of reserves

- (1) *In order to maintain the fund as required by section 116, the board may include in any amount to be assessed on the employers, and may collect from them, any amounts that the board considers necessary for that purpose.*
- (2) *The amounts assessed and collected pursuant to subsection (1) are to form a reserve fund.*

151 - Investments of reserve fund

- (1) *The board shall invest all or any part of the moneys standing to the credit of the reserve fund mentioned in subsection 150(2) in any securities authorized for investment of moneys pursuant to The Pension Benefits Act, 1992.*
- (2) *The board may dispose of any securities in which any part of the reserve fund mentioned in subsection (1) has been invested pursuant to subsection (1) in any amount and on any terms that the board considers expedient. ..."*

The Act essentially requires the WCB to maintain a funded status, to cover all current and future costs of claims, and leaves to the discretion of the WCB the establishment of reserves.

The current funding policy of the WCB is described in Policy 6.4 - Funding. The fundamental principles followed by the WCB for its funding, as well as some preliminary comments, are as follows:

- Full funding basis, where premiums for a given year are established at a level sufficient to cover all costs, current and future, for injuries occurring in that year, including funding of the costs of known long latency occupational diseases during the period of exposure; as a consequence, WCB's assets would fully match or

exceed its liabilities and would be sufficient to pay for the future disbursements of injuries that occurred in the past.

Comment: This principle, while not stated explicitly in the funding policy, is followed by the WCB in setting the premiums required from employers. It is consistent with all Canadian boards; they follow the full funding basis and had to consider by the end of 2014 the liabilities for known long latency occupational diseases expected to arise in the future as a result of past exposure.

- Reserves are established to meet the requirements of the Act with respect to disasters and to provide employers with cost relief on claims attributed to some circumstances: Disaster reserves, parts 1 and 2, and Second injury and re-employment reserve, each at 1% of benefit liabilities.
- The Injury Fund is increased or decreased by the operating surpluses and deficits of the WCB; in addition, the appropriation of funds to or from reserves and the change in other comprehensive income or loss are considered.
- To protect from risks and uncertainties, the targeted funding range for the Injury Fund is determined at 105% to 120% of previous year's benefit liabilities. Unrealized gains and losses on investments are not considered in the determination of the WCB's funded status.
- If the Injury Fund falls below 103%, the WCB may, at the WCB discretion, increase the premium rates as part of the annual rate setting process to replenish the Injury Fund over a period not to exceed 5 years. If the Injury Fund rises above 122%, refunds will be given back to employers, at the WCB discretion, over a period not to exceed 5 years, until the fund reaches 120%.

Comment: Some Canadian boards provide for automatic premium increases when the funding ratio falls below a certain level, or for automatic reductions of premiums or surplus distributions when the target level is achieved.

Capital management at the WCB

WCB monitors its funded status in accordance with the funding policy and determines the "Funding percentage", which is calculated at the end of the year as the benefit liabilities, plus the balance in the Injury Fund, excluding unrealized gains and losses on investments, divided by the benefit liabilities.

The funding percentage has been determined as follows at the end of the last three financial years:

Table 3.1 - Capital management in the last three financial years

(thousands of dollars)	2012	2013	2014
A. Funded position	440,263	636,040	733,733
B. Accumulated other comprehensive income (loss)	(8,406)	(2,581)	(4,072)
C. Reserves	150,381	117,566	34,557
D. Injury Fund (A - B - C)	298,288	521,055	703,248
E. Unrealized gains (losses) on investments	126,821	311,227	331,949
F. Net Injury Fund (D - E)	171,467	209,828	371,299
G. Benefit liabilities	1,005,443	1,085,532	1,151,909
WCB's funded position (funding percentage) (100% + F / G)	117.1%	119.3%	132.2%

As observed, the funding percentage exceeds the 122 % level at year-end 2014, which will result in a surplus distribution in 2015.

The following table presents the benefit liabilities and the funding percentage since 2009:

Table 3.2 - WCB's funded position (funding percentage) from 2009 to 2014

Capital management	2009	2010	2011	2012	2013	2014
Benefit liabilities (\$ millions)	995.7	1,021.3	1,013.9	1,005.4	1,085.5	1,151.9
Funding percentage	111.2%	111.5%	119.0%	117.1%	119.3%	132.2%

As observed, the funding percentage has, for the first time since 2009, fallen outside the 105% to 120% range at the end of 2014.

Section 4: Premium requirements

The first element to address in a funding policy is the premium requirements. The premiums paid by current employers should cover the estimated current and future costs of current year injuries and all expenses. However, experience gains and losses are inevitable as actual costs will be different from those estimated and the board's funded position will present an accumulated surplus or deficit. Sources of gains and losses include investment returns, inflation or other assumptions such as disability recovery or health care utilization; in addition, gains and losses can result from accounting or actuarial changes or benefit modifications.

The WCB, as other Canadian workers' compensation boards, determines the average premium rate to be charged to employers on the basis of the following components, making up premium rates at the aggregate level:

- **Full funded cost of claims:** To cover all expected benefit payments, current and future, arising from injuries assumed to occur in the coming year; the premium rate is determined such that excess funds are anticipated that can be invested to ensure that long term claims can be paid when due.
- **Administration and other expenses:** The annual costs to run the workers' compensation system, such as the board's administration, safety and prevention, as well as legislated obligations.
- **Premium adjustments:** They refer to additional premiums charged or refunds made to employers as determined by the funding policy, considering the funded position of the board.

The average premium rate is determined as the sum of these requirements over the estimated assessable payroll for the year.

WCB 2015 average premium rate

The WCB average premium rate charged to employers in 2015 is \$1.46 per \$100 of assessable payroll. The different components of the rate are as follows:

Table 4.1 - Average 2015 premium rate at the WCB

Components	2015 rate
Full funded cost of claims	\$1.08
Administration and other expenses	\$0.38
Premium adjustments	\$0.00
Total	\$1.46

In the preparation of our asset liability modelling, we have reviewed these components.

For the full funded cost of claims, we have used the 1999 to 2013 rate reconciliation of the rate setting model as prepared by the WCB. The actual claim costs for each of the last 15 years as at December 31, 2013 has been determined as the sum of:

- The total actual costs paid through December 31, 2013 for all claims occurring in the year, valued at July 1st of the injury year;
- The outstanding costs (future liabilities) as at December 31, 2013 for all claims occurring in the year, valued at July 1st of the injury year.

The average claim costs per \$100 of assessable payroll as determined at December 31, 2013 for the years 1999 to 2013 over different periods are as follows:

Table 4.2 - Average cost of claims per \$100 of assessable payroll

Period	Duration	Average	Period	Duration	Average	Period	Duration	Average
1999-2003	5 years	1.401						
2004-2008	5 years	1.115	2004-2013	10 years	1.025	1999-2013	15 years	1.150
2009-2013	5 years	0.935						

As observed, the cost of claims has reduced over the 1999-2013 period, in particular since 2009. While the average over the 15-year period stands at \$1.150 per \$100 of assessable payroll, the most recent 5-year and 10-year averages are at \$0.935 and \$1.025 respectively.

These rates compare to the rate of \$1.08 used for the full funded cost of claims in the determination of 2015 average premium rate; this reflects a prudent approach to the emerging experience.

In view of the emerging claim cost experience and its current level of funding, we recommend that the WCB reviews its rate setting model for the determination of the premium requirements.

For projection of the estimated costs in future years, we have used WCB's recent experience for the full funded cost of claims as well as for the estimated administration and other expenses.

Average premium rate in Canadian boards

The \$1.46 Saskatchewan average premium rate compares as follows with average premium rates in Canadian workers' compensation boards over the last four years:

Table 4.4 - Average premium rates for Canadian boards

Board	Average premium rate			
	2012	2013	2014	2015
Alberta	\$1.22	\$1.12	\$1.03	\$0.97
British Columbia	\$1.54	\$1.63	\$1.70	\$1.70
Manitoba	\$1.50	\$1.50	\$1.50	\$1.30
New Brunswick	\$1.70	\$1.44	\$1.21	\$1.11
Newfoundland and Labrador	\$2.75	\$2.75	\$2.45	\$2.45
Nova Scotia	\$2.65	\$2.65	\$2.65	\$2.65
Northwest Territories and Nunavut	\$1.77	\$2.05	\$2.05	\$2.00
Ontario	\$2.40	\$2.46	\$2.46	\$2.46
Prince Edward Island	\$1.99	\$1.97	\$1.90	\$1.79
Quebec	\$2.13	\$2.08	\$2.02	\$1.94
Saskatchewan	\$1.60	\$1.58	\$1.51	\$1.46
Yukon	\$2.39	\$2.34	\$2.18	\$1.90
Arithmetic average	\$1.97	\$1.96	\$1.89	\$1.81

As observed, the average premium rate has generally decreased over the last few years in Canada. At \$1.46 in 2015, Saskatchewan WCB has the 4th lowest average premium rate, after the Alberta, New Brunswick and Manitoba boards. It should be noted that the 2015 New Brunswick rate includes a \$0.44 rate reduction as their FMV asset/liability ratio exceeds their target funding level; part of their 2015 operating costs are financed through their surplus, instead of using surplus distributions as in Saskatchewan.

Section 5: Risks for the WCB

The WCB determines the premium rates in estimating the benefit payments and money is set aside to pay for future costs, but, inevitably, experience gains and losses will develop, and the board's funded position will present an accumulated surplus or deficit.

The most important risk factors for the WCB include:

- Funding percentage or FMV asset/liability ratio: The possibility for the funding percentage to fall below a certain level (e.g. 103%) constitutes a very important risk factor for the WCB. Similarly, as the funded position is determined on a market value basis, the possibility for the FMV asset/liability ratio (total assets over total liabilities) to fall below a certain level (e.g. 100%) constitutes also a very significant risk factor for the WCB.
- Level and volatility of the average premium rate: To be fair, premiums paid by the current generations of employers should be aligned to the costs generated by these generations of employers (required premium rate); a legitimate objective is also to ensure stability in the average premium rate. The possibility of having to implement major rate increases constitutes an important risk factor.
- Real and nominal rates of return of the Fund: The nominal and real return assumptions underlying the actuarial valuation of the benefit liabilities are respectively 5.5% and 3% per annum. The possibility for the nominal and real rates of return to fall below the actuarial nominal and real discount rates is also an important risk factor for the WCB.

We have tried to assess and prioritize these risk factors for the WCB. Based on our knowledge of your organization, some elements that have been considered in the analysis are as follows:

- A funding percentage of 105% is considered to be the minimum acceptable, with the WCB to take the necessary steps to increase it back to 105% within a relatively short period of time if it falls below 103%.
- Maintenance of a funding percentage and a FMV asset/liability ratio over 100% is considered more important than minimization of the average premium rate.
- Stability of the average premium rate is more important than the absolute level of the average premium rate.
- Required increases to the premium rate should be limited and decreases should be done progressively to reduce the possibility to have to increase the rate in the future.

This indicates that a fully funded position and the stability of average premium rate constitute the two most important parameters from a risk perspective.

Methods and assumptions for projections

A stochastic model has been used to illustrate the complex financial risks inherent at the WCB and their financial impact on the long term funding of the WCB and on the premiums that will be paid by Saskatchewan employers.

Under this model, the WCB assets and liabilities are projected year by year under multiple economic and financial scenarios, and distributions of a number of parameters are derived. Under such process, the statistical distribution of the potential outcomes of any given parameter is projected, rather than only the "expected" level of such parameter. The stochastic distribution therefore allows an assessment of the potential risks inherent to the evolution of the parameter; for example, the distribution will show the potential level of the parameter under analysis in each year of the projection period under very favourable scenarios (5th percentile or one chance out of 20), under favourable scenarios (25th percentile or one chance out of 4), under the median scenario

(i.e. everything goes more or less as "expected"), under unfavourable scenarios (75th percentile or one chance out of 4) and under very unfavourable scenarios (95th percentile or one chance out of 20).

Our projections of the funding of the WCB provide relevant information to visualize the projected financial evolution of the Injury Fund and of pertinent financial parameters over the next several years, and illustrate the dynamics of the interaction among the various strategies (e.g. long term asset mix, funding policy and premium setting mechanisms). We used as the basis for the projections the assets, liabilities and other financial information reflected in the consolidated financial statements of the WCB as at December 31, 2014.

The main assumptions used for the projections include:

- Annual inflation: 1.9% in 2015, increasing slightly to 2.0% in 2024
- Annual wage growth: inflation + 1%
- Annual health care escalation: inflation + 4.5%
- 2015 estimated assessable payroll: \$21,207M
- Annual increase in assessable payroll: wage growth, plus 1% increase in workforce, plus additional increases¹ of 1.2%, 1.2%, 1.0% and 0.9% respectively for the years 2016, 2017, 2018 and 2019
- WCB operating expenses estimated at the amount charged in the previous year, increased with salary growth and assumed increase in workforce.
- No change to current benefit legislation, regulations and management practices.
- Asset mix allocation of the portfolio based on the current investment policy (including a transition between the current portfolio and the target), and assumptions on expected return, volatility and correlation between asset classes developed with a sophisticated model using historical data, internal research and consensus expectations. One of the key underlying features of our model is the tendency for interest rates to revert to historical levels, with fixed income returns expected to be lower in the early portion of the projection due to the negative impact rising interest rates have on bond prices.
- To cover the investment management fees, an annual provision of 0.3% of the investment portfolio has been considered, which represents the average over the 2012-2014 period; we have not anticipated value added performance generated by active asset management.
- Benefit liabilities to be determined using the same actuarial assumptions and methods as those used for the December 31, 2014 actuarial valuation (a change in the nominal discount rate has been tested, as seen later) and the liability for latent occupational diseases estimated at 7.4% of the claim benefit liabilities excluding that component.
- Realized investment income determined in using 3% of the investment portfolio (to estimate interest, dividends, investment revenues and expenses) and 20% of the accumulated unrealized gains and losses (to estimate the realization of accumulated gains and losses).

Based on the 2014 financial results, the surplus distribution for 2015 has been initially established at \$78.9M, which represents about 56% of the excess over the target of 120% of the Injury Fund determined in accordance with the funding policy (\$78.9M over \$140.9M). The excess is calculated as the Injury Fund, excluding the unrealized gains and losses on investments, \$371.3M, less 20% of benefit liabilities, or \$230.4M.

¹ As increases to the maximum insurable earnings will continue until it reaches 165% of the provincial average wage in 2019.

For projection purposes, we have assumed that these guidelines would be followed in the future, using the funding percentage, based on the benefit liabilities, and excluding unrealized gains and losses on investments:

Table 5.1 - Funding policy guidelines

Funding percentage	Action
Above 122%	50% of the excess over 120% to be distributed in the following year
103% to 122%	No fund replenishment or surplus distribution
Below 103%	Special replenishment levies over 5 years of amount under 105%

Projection results of nominal and real rates of return

The annual inflation rate as well as the net nominal and real rates of return of WCB investments are quite volatile, in particular the nominal and real rates. For example, in 2015:

Table 5.2 - Statistics on annual rates in 2015

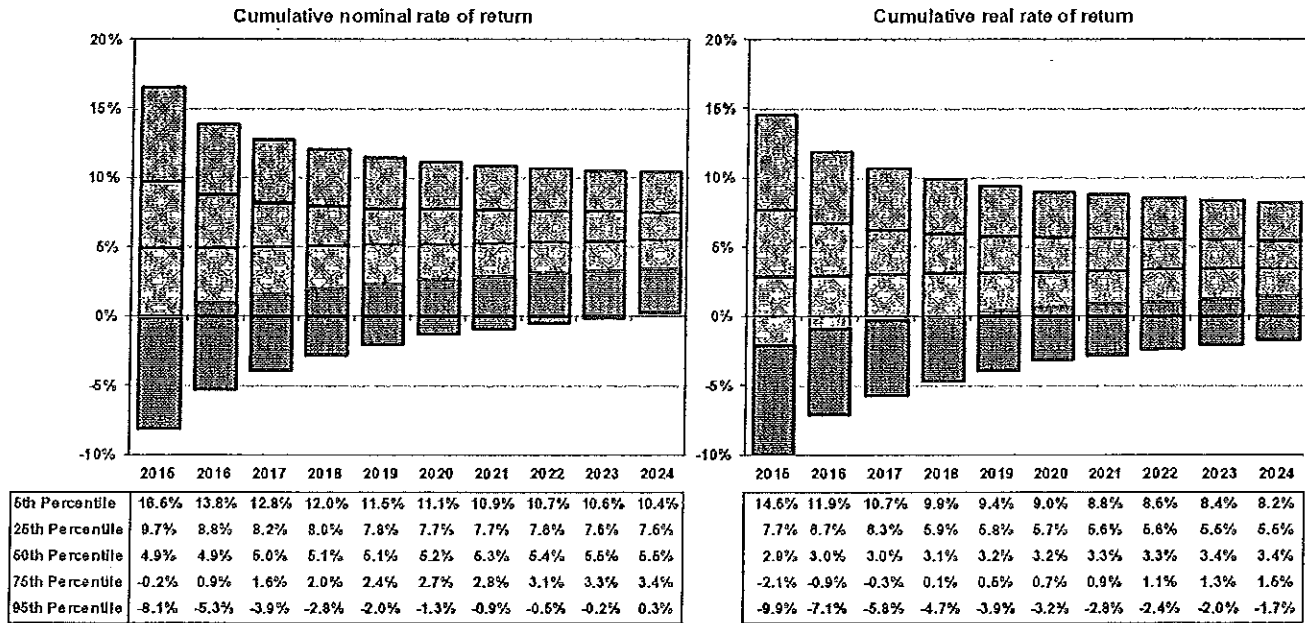
Percentile	Nominal rate	Inflation rate	Real rate
5 th percentile	16.6%	3.1%	14.6%
25 th percentile	9.7%	2.4%	7.7%
Median	4.9%	1.9%	2.9%
75 th percentile	-0.2%	1.4%	-2.1%
95 th percentile	-8.1%	0.8%	-9.9%

In our projections, the inflation rate is slightly increasing during the projection period to reach 2% by 2020. This assumption is consistent with the stated objective of the monetary policy of the Bank of Canada, but lower than the annual 2.5% inflation rate assumed for actuarial valuation purposes; the use of a lower expected rate for the present projections is in our opinion appropriate and is not inconsistent with the valuation rate, given the need for prudence in the valuation process.

Our projections have been prepared using the actual asset mix allocation of the WCB portfolio as at December 31, 2014 as the starting point. The projections then take into account a transition to the revised long term asset mix policy, as adopted in recent months and described in the Statement of Investment Policies and Goals, including allocations to global high yield bonds, Canadian and global low volatility equities, as well as global small capitalization equities, along with an increase in real estate investments. The distribution of the nominal and real rates of return of WCB investments for cumulative periods of 1 to 10 years is illustrated on next page. Some observations that can be derived from these graphs are as follows:

- At the median level, the nominal rate of return over a 10-year horizon is 5.5%, the same as the rate currently used for the actuarial valuation, while the real rate of return is 3.4%, higher than the real discount rate assumed for actuarial valuation purposes.
- We assume in our model that interest rates will revert to historical levels; during the transition period of 5-6 years, rising interest rates have a negative impact on fixed income returns, and expected investment returns increase annually up to 2021 and remain relatively stable thereafter.
- The rates of return are significantly volatile, in line with historical data. Over a 10-year horizon, the potential volatility is still important; for example, the nominal rate of return is 10.4% at the 5th percentile and 0.3% at the 95th percentile (i.e. there is a 10% chance that the average return will fall outside the 0.3%/10.4% band).

Distribution of nominal and real rates of return on investments for cumulative periods of 1 to 10 years:



Projections results with current financial parameters

The first set of projections of all the components of the assets, liabilities, revenues and expenses of the WCB from 2015 to 2024 has been prepared assuming that the current financial parameters will be maintained throughout the projection period, including an average premium rate of \$1.46. This is our Scenario 1, or Base Scenario.

The following table presents some probabilities of surplus distributions and special levies (when the funding percentage falls outside the 103% to 122% range), as well as statistics on the average amounts when they occur:

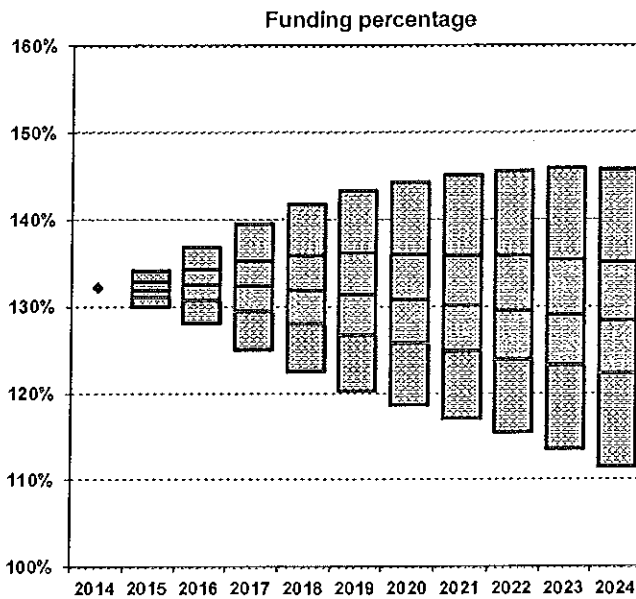
Table 5.3 - Statistics and probabilities on surplus distributions and special levies - Scenario 1

Statistics	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Probability to have a:										
Surplus distribution	100.0%	100.0%	98.9%	96.0%	91.8%	88.0%	84.8%	81.9%	79.3%	76.5%
Special levy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.6%	1.2%
No surplus or levy	0.0%	0.0%	1.1%	4.0%	8.2%	12.0%	15.1%	17.8%	20.1%	22.3%
Average amount in millions of dollars (when it occurs) of:										
Surplus distribution	71	77	79	82	85	90	93	97	101	100
Special levy	0	0	0	0	0	13	13	15	18	20
Average amount expressed per \$100 of assessable payroll (when it occurs) of:										
Surplus distribution	0.32	0.33	0.32	0.32	0.32	0.33	0.32	0.32	0.32	0.32
Special levy	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.06	0.06
Probability that, over a certain time horizon:					3 years		5 years		10 years	
					2016-2018		2016-2020		2016-2025	
A surplus distribution will be made every year					98.9%		90.1%		61.6%	
A special levy will be done in any year					0.0%		0.0%		1.3%	

The following observations can be made:

- The funding percentage is currently relatively high as are the unrealized gains on investments. Consequently, the probability to have a surplus distribution remains high during the projection period and the probability of a special levy is very low.
- Within the next 10 years, there is a 61.6% chance that the funding percentage will remain above the 122% level and that a surplus distribution will be made every year.
- Similarly, there is a 1.3% chance that the funding percentage will fall below the 103% level at least once over the next 10 years and that a special levy (or premium rate increase) will have to be made.
- The average surplus distribution, when one occurs, is relatively stable during the projection period, at about \$0.32 per \$100 of assessable payroll. The average special levy, when one occurs, is increasing slightly during the projection period, but is at a lower level (at \$0.06 per \$100 of assessable payroll in 2025) than the average surplus distribution.

The following illustrates the projected statistical distribution of the funding percentage at each year-end during the projection period, and presents some probabilities:



Level	Time Horizon		
	3 years 2015-2017	6 years 2015-2019	10 years 2015-2024
Probability that the Funding Percentage remains above a certain level every year over a certain time horizon:			
125%	94.8%	77.8%	43.5%
120%	99.7%	94.8%	73.2%
105%	100.0%	100.0%	98.2%
100%	100.0%	100.0%	99.4%
Probability that the Funding Percentage decreases below a certain level at least once over a certain time horizon:			
125%	5.2%	22.2%	56.5%
120%	0.3%	5.2%	26.8%
105%	0.0%	0.0%	1.8%
100%	0.0%	0.0%	0.7%

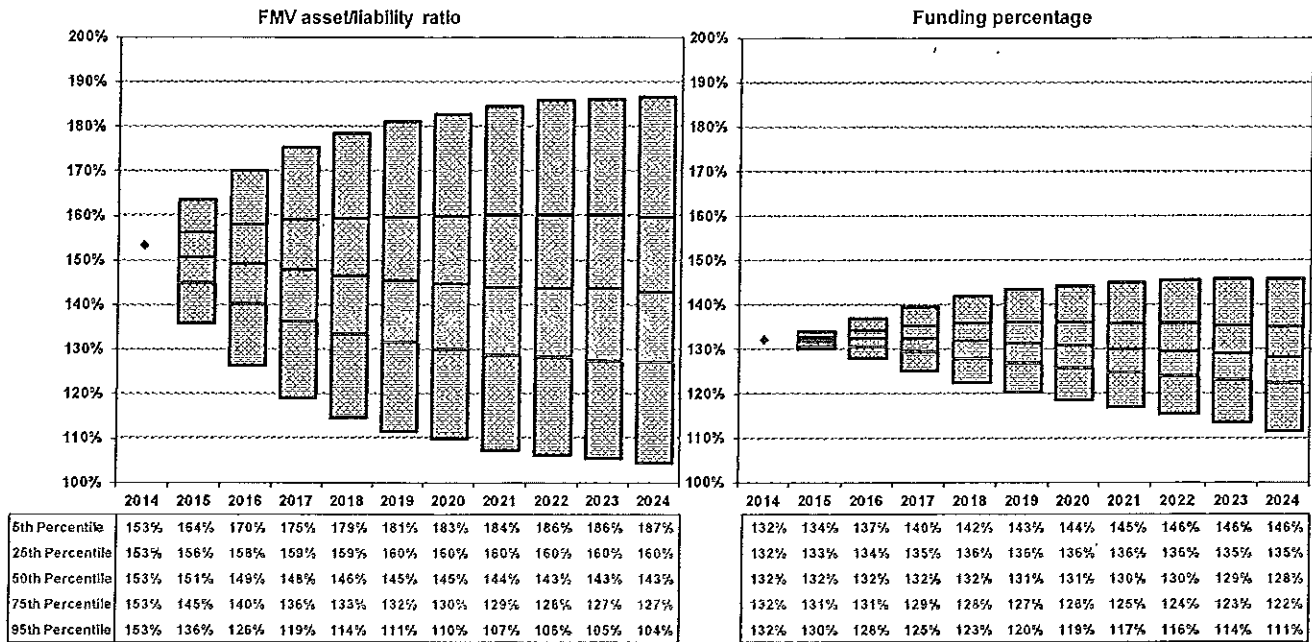
5th Percentile	132%	134%	137%	140%	142%	143%	144%	145%	146%	146%	146%
25th Percentile	132%	133%	134%	135%	136%	136%	136%	136%	136%	135%	135%
50th Percentile	132%	132%	132%	132%	132%	131%	131%	130%	130%	129%	128%
75th Percentile	132%	131%	131%	129%	128%	127%	126%	125%	124%	123%	122%
95th Percentile	132%	130%	128%	125%	123%	120%	119%	117%	116%	114%	111%

A number of observations can be made:

- The funding percentage is slightly decreasing at the median level. Under favourable scenarios (one chance out of 4), the funding percentage would reach 135%, and even 146% under very favourable scenarios (one chance out of 20) in 2024.
- Because of the volatility of investment returns and inflation, the funding percentage could decrease below the 122% level, which would stop surplus distributions, and would even fall to the 111% level under very unfavourable scenarios (one chance out of 20) in 2024.

- At the median level, the WCB's funding percentage is decreasing progressively over time as the surplus distributions at 50% of the excess over 120% exceed gains from different sources, such as those resulting from investment income on the Injury Fund, from the inflation assumption (the inflation rate generated by the model is lower than the 2.5% valuation assumption), and from the average premium rate being higher than the rate required to pay for current year injuries and operating costs in our model.
- The maintenance of the funding percentage at a level over 105% is clearly one of financial priorities of the WCB. The table of probabilities indicates that with the current policies, there is indeed a small risk that the funding percentage decreases below 105%. For example, there is a 1.8% probability that the funding percentage decreases below 105% at least once over the next 10 years. There is even a 0.7% probability that the funding percentage decreases below 100%, despite premium rate increases when the funding percentage falls below 103%.
- Over a five-year horizon, there is a 77.8% chance that the funding percentage remains above 125% every year, and a 43.5% chance that the funding percentage remains annually above that level over the next 10 years.

The projected statistical distribution of the FMV asset/liability ratio, which is calculated on a market value basis, is compared to the distribution of the funding percentage at each year-end during the projection period:



The following observations should be noted:

- The funding percentage is much less volatile than the FMV asset/liability ratio, which is based on a market value of the assets.
- The FMV asset/liability ratio is quite volatile, in particular because of the volatility of assets: assets are recognized at market value and are directly affected by the volatility of market rates of return. Liabilities are less volatile as they are not directly affected by interest rate movements and the projections assume no changes to the actuarial assumptions during the projection period.
- The FMV asset/liability ratio is decreasing initially and stabilizes around 143% at the median level. Under favourable scenarios (one chance out of 4), the FMV asset/liability ratio would reach 160%, and even 181% under very favourable scenarios (one chance out of 20) in 2019.

- The maintenance of the FMV asset/liability ratio at a level over 100% is clearly one of financial priorities of the WCB. The risk that the FMV asset/liability ratio decreases below 100% at least once over the next five years is at 1.8%, and at 6.5% over the next 10 years.

Recent changes to the long term asset mix policy will have the intended objective of reducing volatility of the portfolio returns while maintaining an expected rate of return equivalent to the previous asset mix. The revised asset allocation was utilized in the projections and does not appear to impact the WCB's ability to fund its obligations.

These projections illustrate the financial risks for the WCB and the need to regularly monitor the funded position of the WCB.

Section 6: Review of funding practices in Canadian boards

In this section, we will review the practices in Canadian workers' compensation boards on how they structure and meet their funding requirements. As mentioned before, the financing of all Canadian workers' compensation boards is based on the full funding approach.

Benefit liabilities

The main component of the liabilities is the benefit liabilities. Benefit liabilities are calculated on a long term going concern basis using best estimate assumptions; usually, the assumptions do not include significant margins for adverse deviations. As most benefits are subject to inflation related adjustments, the main assumption is the real discount rate.

Actuarial standards require that an allowance be included in the benefit liabilities for long latency occupational diseases by 2014; most boards had already a provision at year-end 2013, and the Saskatchewan board had set aside a reserve for that purpose.

The real discount rate used for valuation of the benefit liabilities as at December 31, 2013 and indication of the inclusion of a provision for long latency occupational diseases are as follows:

Table 6.1 - Information on the valuation of the benefit liabilities

Board	2013 real discount rate		Long latency occupational diseases
	Rate	Comment	
Alberta	3.00%	2.00 % from 2014 to 2016	Included
British Columbia	3.00%		Included
Manitoba	3.00%		Included
New Brunswick	4.00%		Included
Newfoundland and Labrador	3.50%		Included
Nova Scotia	3.50%		Included
Northwest Territories and Nunavut	3.50%		No
Ontario	3.50%	3.00 % from 2014 to 2017	Included
Prince Edward Island	3.50%		Included
Quebec	3.75%		No
Saskatchewan	3.25%		No
Yukon	3.40%		Included
Average (arithmetic)	3.41%		

The difference in real discount rates reflects the different investment and funding policies, and different expectations for future investment returns and inflation, and possibly a provision for adverse deviations.

The WCB has included the liability for long latency occupational diseases for the first time at the end of 2014, but had a reserve for that purpose at the end of 2013. With the 0.25% reduction in the real discount rate at 2014 year-end, the WCB has, with a 3.00% rate, one of the lowest among Canadian boards, reflecting a prudent approach.

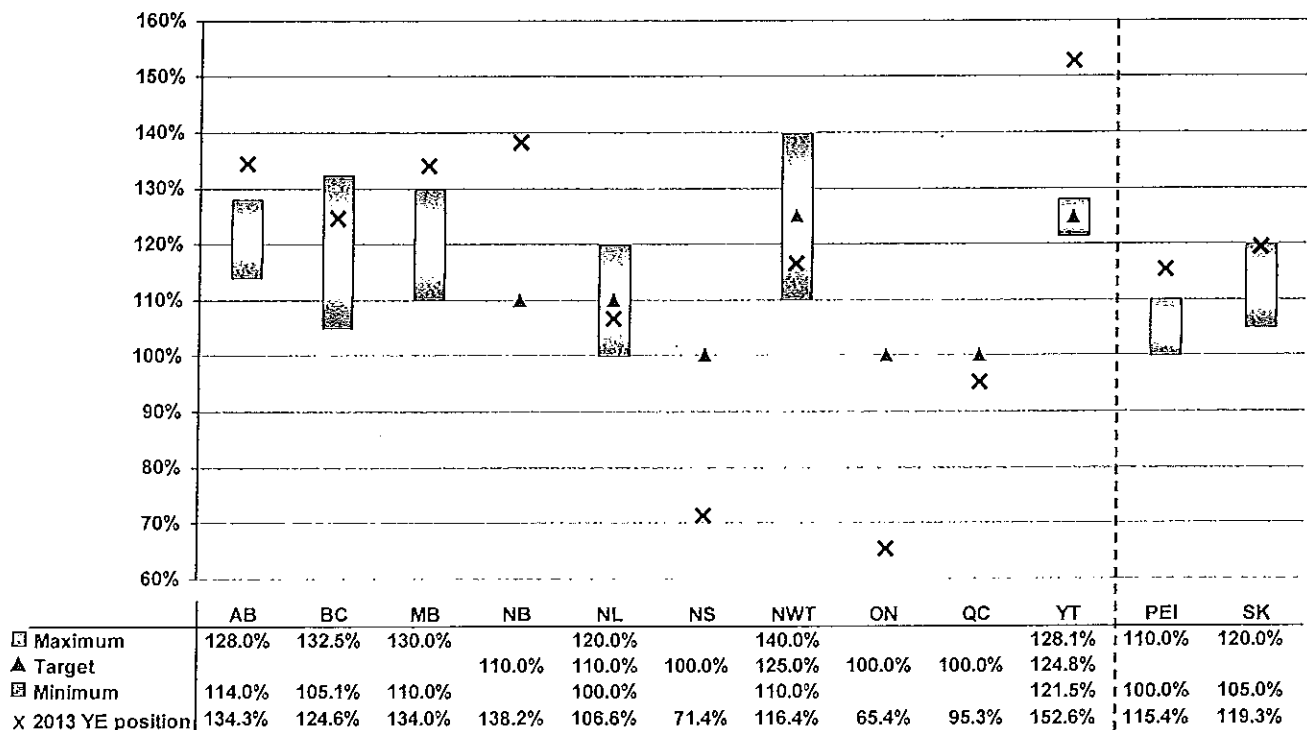
Funding and target funding level

There are essentially three different approaches used by the Canadian boards in arriving at a target funding level:

1. Use a target FMV asset/liability ratio of 100%, recognizing that actual results will fluctuate around that figure (3 boards: Nova Scotia, Ontario and Quebec). At the end of 2013, these boards were underfunded and the premiums included a provision for funding the accumulated deficit to return to full funded status.
2. Choose a fixed percentage or range of percentages (or “green zone”) for the target FMV asset/liability ratio to meet the financial objectives of the board, using the market value of assets (7 boards: Alberta, British Columbia², Manitoba, New Brunswick, Newfoundland and Labrador, Northwest Territories and Nunavut, and Yukon). The range provides for a no-action zone, within which no corrective action is taken, in order to limit reacting to temporary fluctuations.
3. Choose a fixed percentage or range of percentages for the target funding ratio, using a smoothed value of assets or excluding unrealized gains and losses on investments (2 boards: Prince Edward Island and Saskatchewan).

Based on the 2013 financial results, we illustrate in the graph below, for all Canadian boards, the funding target at year-end 2013:

Funding Target at Year-End 2013



² The funding range at WorkSafeBC is based on reserves, including capital adequacy reserve, occupational disease reserve (for exposure to potential new occupational diseases) and special circumstances reserves. In addition, WorkSafeBC sets premium rates using smoothed accounting, where investment returns, along with actuarial gains or losses relating to WorkSafeBC's post-employment employee benefit plan assets and liabilities, are amortized over a five-year period; the latent occupational disease liability is not considered for rate-setting purposes.

It should be noted that we have shown separately the results for the Prince Edward Island (PEI) and Saskatchewan (SK) boards as their funding policy is based respectively on a smoothed value of assets³ and on assets excluding unrealized gains and losses on investments. Using assets on a market value basis, the FMV asset/liability ratio of these boards at year-end 2013 was 135.3% for the PEI board and 148.8% for the Saskatchewan board.

The following parameters, as a percentage of total liabilities, are presented in the graph:

- The 2013 YE position, or the FMV asset/liability ratio as at December 31, 2013 (assets divided by liabilities), or the funding percentage for the PEI and Saskatchewan boards.
- The maximum, when a range applies, indicating the level where the Board would say: "We have enough money; any fund over that level could be used or is not necessary".
- The minimum, when a range applies, indicating the level where the Board would say: "We need to go to that level as a minimum; if we are not at that level, we might increase the premiums to reach it".
- The target funding level is typically comparable to the minimum where there is no green zone.

As can be observed:

- Most boards provides for a funding range in their funding policy.
- Excluding the three boards that were underfunded at 2013 year-end and the New Brunswick (NB) board that had no range, the average funding range varies between a minimum of 108.2% and a maximum of 126.1%. The funding ranges of the PEI and Saskatchewan boards are at a lower level as their funding percentages are less subject to fluctuations than the FMV asset/liability ratios based on a market value basis.

³ Gains or losses realized on disposal of fixed term investments are deferred and amortized on a straight line basis over a nine year period, and realized and unrealized gains and losses on equity investments are deferred and amortized on a straight line basis over a four year period.

Section 7: Impact of different surplus distribution bases

The funding policy of the WCB specifies that:

"Where the funded status rises above 122 percent, refunds will be given back to the employers, at the WCB's discretion, over a period not to exceed five years until the fund reaches 120 percent."

On February 23, 2015, in accordance with the WCB's funding policy, the Board approved a \$78,900,000 distribution to employers from the Injury Fund in 2015. This amount represents 56.0% of the excess over the 120% funding level, which stands at \$140,917,200 (\$371,299,000 - (20% of \$1,151,909,000)) as at December 31, 2014. As indicated in Section 5, we have prepared our asset liability projections assuming that in the future 50% of the excess over 120% would be distributed in the following year.

We are illustrating in this section the impact of different surplus distribution bases starting in 2015 and in future years, as follows:

Table 7.1 - Surplus distribution bases

Scenario	Amount in 2015	Amount in 2016 and after
A	\$28.2M	20% of excess over 120%
B	\$78.9M	50% of excess over 120%
C	\$105.7M	75% of excess over 120%
D	\$140.9M	100% of excess over 120%

Scenario B is the scenario we used in our projections presented in Section 5.

Stochastic projections have been prepared to assess the implications of these different surplus distribution bases and the main results of the various projections are illustrated in this section.

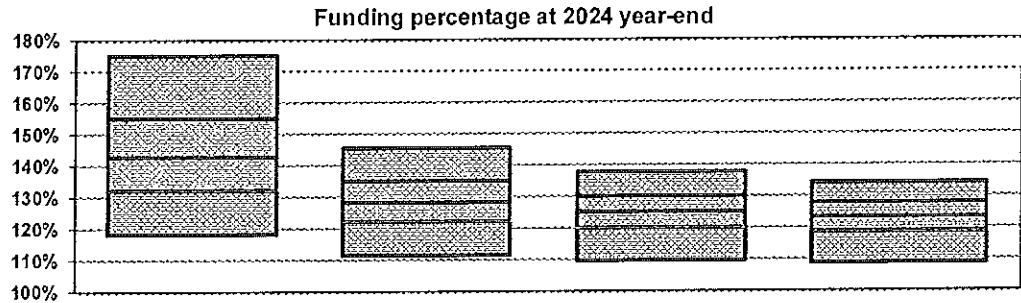
For each of these scenarios, the following tables appear at the end of this section:

- Some probabilities of surplus distributions and special levies (when the funding percentage falls outside the 103% to 122% range) for each of the years in the projection period, as well as statistics on the average amounts when they occur.
- The projected statistical distribution of the funding percentage at each year-end during the projection period, as well as some probabilities that the funding percentage remains above or falls below certain levels over different time horizons.

We have compared the impact of the different surplus distribution bases and the results are presented in two tables on next page:

- A comparison of the distributions of the funding percentages at the end of the 10-year projection period and some probabilities related to the funding percentage.
- The probability of a surplus distribution or a special levy (premium increase to replenish the Injury Fund to the 105% level) in 2025, as well as the average amount of the surplus distribution or special levy, and some other probabilities.

Comparison of the distributions of funding percentages



Scenario of surplus distribution	A	B	C	D
Amount in 2015	\$28.2M	\$78.9M	\$105.7M	\$140.9M
% of excess in future years	20%	50%	75%	100%
5th Percentile	175%	146%	138%	134%
25th Percentile	165%	135%	130%	128%
50th Percentile	143%	128%	125%	123%
75th Percentile	132%	122%	120%	119%
95th Percentile	118%	111%	110%	109%
Probability that the funding percentage decreases below a certain level at least once in next 10 years:				
Funding percentage < 125%	15.2%	56.5%	83.2%	97.1%
Funding percentage < 120%	7.6%	28.8%	42.2%	57.5%
Funding percentage < 105%	0.6%	1.8%	2.6%	3.1%
Funding percentage < 100%	0.2%	0.7%	1.0%	1.1%

Probabilities and statistics regarding surplus distributions or special levies

Table 7.2 - Comparison of various probabilities and statistics with different surplus distribution bases

Scenario	A - 20%	B - 50%	C - 75%	D - 100%
Probability to have, in 2025, a:				
Surplus distribution	91.7%	76.5%	67.0%	59.1%
Special levy	0.4%	1.2%	1.5%	1.7%
No surplus distribution or levy	8.0%	22.3%	31.5%	39.1%
Average amount in millions of dollars (when it occurs), in 2025, of:				
Surplus distribution	85	100	110	123
Special levy	20	20	20	20
Average amount expressed per \$100 of assessable payroll (when it occurs), in 2025, of:				
Surplus distribution	0.27	0.32	0.35	0.39
Special levy	0.06	0.06	0.06	0.06
Probability that the FMV asset/liability ratio is below 100%:				
At least once over a 10-year horizon	3.4%	6.5%	7.6%	8.2%
Probability that, over 10 years (2016-2025):				
Surplus distribution every year	89.7%	61.6%	39.2%	21.1%
Special levy in any year	0.4%	1.3%	1.7%	2.1%

Some observations regarding the results of the projections, which take into consideration the financial results at 2014 year-end:

1. The probability of surplus distributions progressively reduces for all scenarios over the next 10 years, and more rapidly with a higher level of surplus distribution.
2. As we might expect, the average amount of surplus distribution, when one occurs, increases from scenario A to D, but the probability of distributing a surplus reduces from scenario A to D. The surpluses that are expected to be distributed will eventually be lower when 100% of the excess is distributed. For example, in 2025:

Table 7.3 - Expected surplus distributions in 2025

Scenario	Average amount	Probability	Expected amount
A	\$85M	91.7%	\$78M
B	\$100M	76.5%	\$77M
C	\$110M	67.0%	\$74M
D	\$123M	59.1%	\$73M

3. With higher surplus distribution bases, the probability of a premium levy to replenish the Injury Fund to the 105% level increases. During the next 10 years, there is a 2.1% probability that the funding percentage will be lower than 103% at any year-end with a surplus distribution of 100% of excess over 120%, but this probability reduces if smaller surpluses are distributed.
4. Similarly, the probability that the FMV asset/liability ratio falls below 100% during the next 10 years (i.e. assets on a market value basis are less than the liabilities) increases to 8.2% with full distribution of surpluses.
5. A surplus distribution of 20% of the excess over the 120% funding level in 2015 and in future years would result in the funding percentage increasing for another 3 to 4 years, and stabilizing at 143%-144% at the median level. Under favourable and very favourable scenarios, the funding percentage would continue to increase to reach respectively 155% and 175% in 2024.

In our opinion, considering the current financial situation of the WCB and the amount of unrealized investment gains, the surplus distributions in the future should be made over a shorter period than 5 years (or higher than 20% of surplus being distributed).

We have studied distributions of 50%, 75% and 100% of surplus in excess of the 120% funding percentage, and, with surplus distributions at a higher percentage:

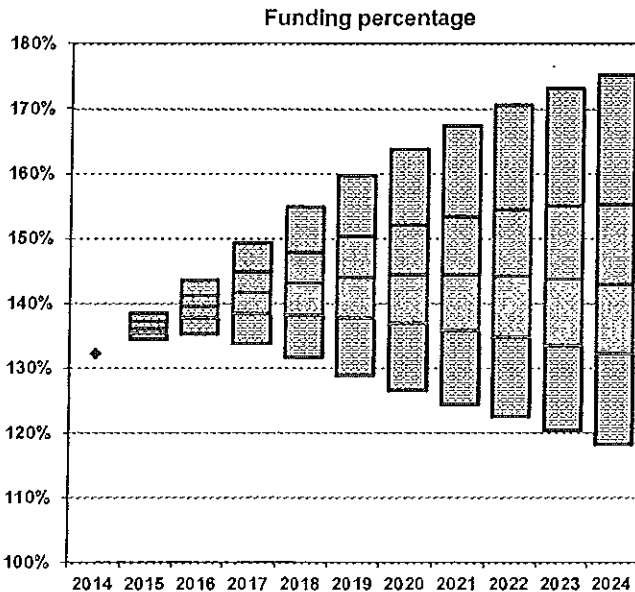
- The average amount of surplus distributed increases, but, over time, the amount expected to be distributed will be similar, and even lower with a higher percentage of surplus distribution.
- The risk of having to implement a premium increase to replenish the Injury Fund is higher, as is the risk for the WCB to be underfunded.

The WCB should determine the percentage of surplus distributions in considering its risk tolerance level. As the level of risk could be modified as a result of a review of its rate setting model, one possibility would be to set initially the surplus distribution at \$78.9M in 2015 and at 50% of the excess over the funding target of 120% thereafter, and to finalize this level once the study of the rate setting model has been completed.

A - Surplus distribution of \$28.2M in 2015 and 20% of excess over 120% thereafter

Table 7.4 - Statistics and probabilities on surplus distributions and special levies - Scenario A (20%)

Statistics	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Probability to have a:										
Surplus distribution	100.0%	100.0%	100.0%	99.9%	99.4%	98.3%	96.9%	95.5%	93.6%	91.7%
Special levy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.4%
No surplus or levy	0.0%	0.0%	0.0%	0.1%	0.6%	1.7%	3.1%	4.4%	6.2%	8.0%
Average amount in millions of dollars (when it occurs) of:										
Surplus distribution	39	48	55	61	65	71	75	80	84	85
Special levy	0	0	0	0	0	0	20	14	15	20
Average amount expressed per \$100 of assessable payroll (when it occurs) of:										
Surplus distribution	0.18	0.21	0.23	0.24	0.25	0.26	0.26	0.27	0.27	0.27
Special levy	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.05	0.05	0.06
Probability that, over a certain time horizon:					3 years 2016-2018		5 years 2016-2020		10 years 2016-2025	
A surplus distribution will be made every year					100.0%		99.4%		89.7%	
A special levy will be done in any year					0.0%		0.0%		0.4%	



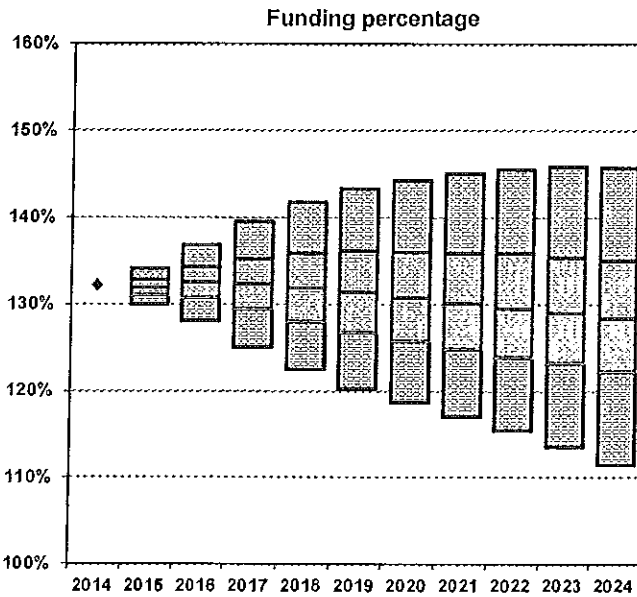
Level	Time Horizon		
	3 years 2015-2017	5 years 2015-2019	10 years 2015-2024
Probability that the Funding Percentage remains above a certain level every year over a certain time horizon:			
125%	100.0%	98.4%	84.8%
120%	100.0%	99.6%	92.4%
105%	100.0%	100.0%	99.4%
100%	100.0%	100.0%	99.8%
Probability that the Funding Percentage decreases below a certain level at least once over a certain time horizon:			
125%	0.0%	1.6%	15.2%
120%	0.0%	0.4%	7.6%
105%	0.0%	0.0%	0.6%
100%	0.0%	0.0%	0.2%

5th Percentile	132%	138%	144%	149%	155%	160%	164%	167%	171%	173%	175%
25th Percentile	132%	137%	141%	145%	148%	150%	152%	153%	155%	155%	155%
50th Percentile	132%	136%	139%	142%	143%	144%	144%	144%	144%	144%	143%
75th Percentile	132%	135%	138%	139%	138%	138%	137%	136%	135%	134%	132%
95th Percentile	132%	134%	136%	134%	132%	129%	127%	124%	123%	120%	118%

B - Surplus distribution of \$78.9M in 2015 and 50% of excess over 120% thereafter

Table 7.5 - Statistics and probabilities on surplus distributions and special levies - Scenario B (50%)

Statistics	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Probability to have a:										
Surplus distribution	100.0%	100.0%	98.9%	96.0%	91.8%	88.0%	84.8%	81.9%	79.3%	76.5%
Special levy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.6%	1.2%
No surplus or levy	0.0%	0.0%	1.1%	4.0%	8.2%	12.0%	15.1%	17.8%	20.1%	22.3%
Average amount in millions of dollars (when it occurs) of:										
Surplus distribution	71	77	79	82	85	90	93	97	101	100
Special levy	0	0	0	0	0	13	13	15	18	20
Average amount expressed per \$100 of assessable payroll (when it occurs) of:										
Surplus distribution	0.32	0.33	0.32	0.32	0.32	0.33	0.32	0.32	0.32	0.32
Special levy	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.06	0.06
Probability that, over a certain time horizon:					3 years 2016-2018		5 years 2016-2020		10 years 2016-2025	
A surplus distribution will be made every year					98.9%		90.1%		61.6%	
A special levy will be done in any year					0.0%		0.0%		1.3%	



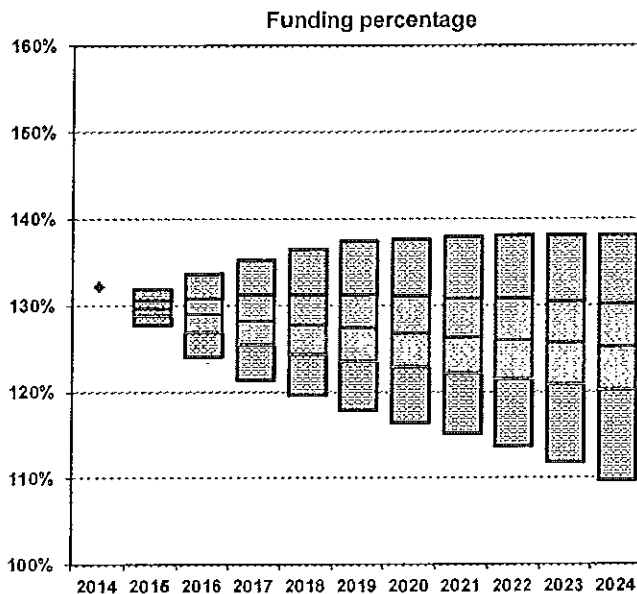
Level	Time Horizon		
	3 years 2015-2017	5 years 2015-2019	10 years 2015-2024
Probability that the Funding Percentage remains above a certain level every year over a certain time horizon:			
125%	94.8%	77.8%	43.5%
120%	99.7%	94.8%	73.2%
105%	100.0%	100.0%	98.2%
100%	100.0%	100.0%	99.4%
Probability that the Funding Percentage decreases below a certain level at least once over a certain time horizon:			
125%	5.2%	22.2%	56.5%
120%	0.3%	5.2%	26.8%
105%	0.0%	0.0%	1.8%
100%	0.0%	0.0%	0.7%

6th Percentile	132%	134%	137%	140%	142%	143%	144%	145%	146%	146%
25th Percentile	132%	133%	134%	135%	136%	136%	136%	136%	135%	135%
50th Percentile	132%	132%	132%	132%	131%	131%	130%	130%	129%	128%
75th Percentile	132%	131%	131%	129%	128%	127%	126%	125%	124%	123%
95th Percentile	132%	130%	128%	125%	123%	120%	119%	117%	116%	114%

C - Surplus distribution of \$105.7M in 2015 and 75% of excess over 120% thereafter

Table 7.6 - Statistics and probabilities on surplus distributions and special levies - Scenario C (75%)

Statistics	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Probability to have a:										
Surplus distribution	100.0%	99.1%	93.4%	87.5%	83.3%	79.2%	75.9%	72.6%	69.7%	67.0%
Special levy	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.5%	0.9%	1.5%
No surplus or levy	0.0%	0.9%	6.6%	12.5%	16.7%	20.7%	23.9%	26.9%	29.4%	31.5%
Average amount in millions of dollars (when it occurs) of:										
Surplus distribution	87	83	85	89	93	98	101	106	111	110
Special levy	0	0	0	0	0	13	13	16	17	20
Average amount expressed per \$100 of assessable payroll (when it occurs) of:										
Surplus distribution	0.39	0.36	0.35	0.35	0.35	0.35	0.35	0.36	0.36	0.35
Special levy	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.06
Probability that, over a certain time horizon:					3 years 2016-2018		5 years 2016-2020		10 years 2016-2025	
A surplus distribution will be made every year					92.7%		74.7%		39.2%	
A special levy will be done in any year					0.0%		0.0%		1.7%	



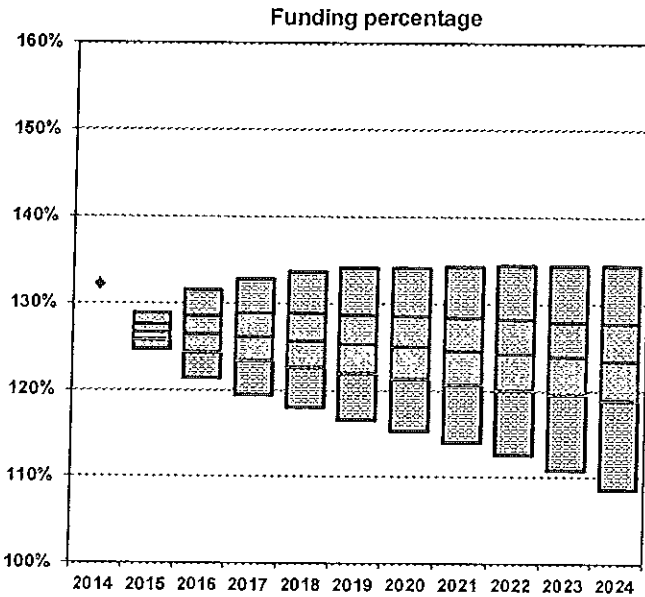
Level	Time Horizon		
	3 years 2015-2017	5 years 2015-2019	10 years 2015-2024
Probability that the Funding Percentage remains above a certain level every year over a certain time horizon:			
125%	73.7%	46.8%	16.8%
120%	97.5%	87.4%	57.8%
105%	100.0%	100.0%	97.4%
100%	100.0%	100.0%	99.1%
Probability that the Funding Percentage decreases below a certain level at least once over a certain time horizon:			
125%	26.3%	53.2%	83.2%
120%	2.5%	12.6%	42.2%
105%	0.0%	0.1%	2.6%
100%	0.0%	0.0%	1.0%

5th Percentile	132%	132%	134%	136%	136%	137%	138%	138%	138%	138%	138%
25th Percentile	132%	131%	131%	131%	131%	131%	131%	131%	131%	130%	130%
50th Percentile	132%	130%	129%	128%	128%	127%	127%	126%	126%	126%	125%
75th Percentile	132%	129%	127%	126%	124%	124%	123%	122%	122%	121%	120%
95th Percentile	132%	128%	124%	121%	120%	118%	116%	115%	114%	112%	110%

D - Surplus distribution of \$140.9M in 2015 and 100% of excess over 120% thereafter

Table 7.7 - Statistics and probabilities on surplus distributions and special levies - Scenario D (100%)

Statistics	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Probability to have a:										
Surplus distribution	100.0%	92.7%	84.8%	79.3%	74.7%	71.3%	67.9%	64.8%	62.2%	59.1%
Special levy	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.7%	1.2%	1.7%
No surplus or levy	0.0%	7.3%	15.2%	20.7%	25.3%	28.6%	31.8%	34.6%	36.6%	39.1%
Average amount in millions of dollars (when it occurs) of:										
Surplus distribution	80	85	92	97	102	107	111	118	123	123
Special levy	0	0	0	0	9	14	14	15	16	20
Average amount expressed per \$100 of assessable payroll (when it occurs) of:										
Surplus distribution	0.36	0.37	0.38	0.38	0.39	0.39	0.39	0.39	0.39	0.39
Special levy	0.00	0.00	0.00	0.00	0.03	0.05	0.05	0.05	0.05	0.06
Probability that, over a certain time horizon:					3 years 2016-2018		5 years 2016-2020		10 years 2016-2025	
A surplus distribution will be made every year					79.2%		54.5%		21.1%	
A special levy will be done in any year					0.0%		0.0%		2.1%	



Level	Time Horizon		
	3 years 2015-2017	5 years 2015-2019	10 years 2015-2024
Probability that the Funding Percentage remains above a certain level every year over a certain time horizon:			
125%	37.7%	16.2%	2.9%
120%	92.5%	77.3%	42.5%
105%	100.0%	99.9%	96.9%
100%	100.0%	100.0%	98.9%
Probability that the Funding Percentage decreases below a certain level at least once over a certain time horizon:			
125%	62.3%	83.8%	97.1%
120%	7.5%	22.7%	57.5%
105%	0.0%	0.1%	3.1%
100%	0.0%	0.0%	1.1%

5th Percentile	132%	129%	132%	133%	134%	134%	134%	134%	135%	135%	134%
25th Percentile	132%	128%	129%	129%	129%	129%	128%	128%	128%	128%	128%
50th Percentile	132%	127%	127%	126%	126%	125%	125%	124%	124%	123%	123%
75th Percentile	132%	126%	124%	123%	123%	122%	121%	121%	120%	120%	119%
95th Percentile	132%	125%	121%	119%	118%	117%	116%	114%	113%	111%	109%

Section 8: Impact of alternate financing strategies

In this section, we review the impact of two alternate financing strategies:

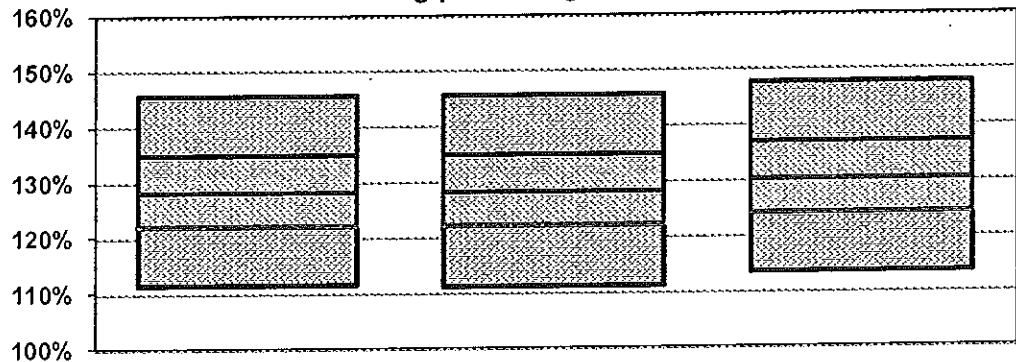
- Scenario 2: At 2015 year-end, reduction by 0.25% of the assumption for nominal rate of return used in the valuation of benefit liabilities, to 5.25% per annum.
- Scenario 3: Elimination of reserves and change the funding policy range to 107% to 122%, a 2% increase from the 105% to 120% range.

Stochastic projections have also been prepared to assess the implications of these alternate financing strategies and the main results of the various projections of these alternate financing strategies are illustrated in this section.

Comparison of the distributions of funding percentages

The following table compares the distributions of the funding percentages at the end of the 10-year projection period for these alternate financing strategies with scenario 1 in Section 5:

Funding percentage at 2024 year-end



Scenario	1	2	3
Discount rate	5.50%	5.25%	5.50%
Reserves	3.00%	3.00%	0.00%
Funding policy	105% / 120%	105% / 120%	107% / 122%
5th Percentile	146%	146%	148%
25th Percentile	135%	135%	137%
50th Percentile	128%	128%	130%
75th Percentile	122%	122%	124%
95th Percentile	111%	111%	114%
Probability that the funding percentage decreases below a certain level at least once in next 10 years:			
Funding percentage < 125%	56.5%	58.8%	44.1%
Funding percentage < 120%	26.8%	27.6%	17.5%
Funding percentage < 105%	1.8%	2.0%	1.3%
Funding percentage < 100%	0.7%	0.7%	0.4%

Probabilities and statistics regarding surplus distributions or special levies

The following table presents, in 2025, the probability of a surplus distribution or a special levy, as well as their average amount, and some other probabilities for the different financial strategies:

Table 8.1 - Comparison of various probabilities and statistics with different financial strategies

Scenario	1	2	3
Probability to have, in 2025, a:			
Surplus distribution	76.5%	75.9%	76.7%
Special levy	1.2%	1.2%	1.1%
No surplus distribution or levy	22.3%	22.9%	22.2%
Average amount in millions of dollars (when it occurs), in 2025, of:			
Surplus distribution	100	102	100
Special levy	20	20	19
Average amount expressed per \$100 of assessable payroll (when it occurs), in 2025, of:			
Surplus distribution	0.32	0.33	0.32
Special levy	0.06	0.06	0.06
Probability that the FMV asset/liability ratio is below 100%:			
At least once over a 10-year horizon	6.5%	6.7%	7.0%
Probability that, over 10 years (2016-2025):			
Surplus distribution every year	61.6%	60.4%	61.9%
Special levy in any year	1.3%	1.4%	1.3%

Scenario 2 - Reduction by 0.25% of the nominal rate of return assumption at 2015 year-end

In comparing results shown on next page with the base scenario (scenario 1 in Section 5), the following observations can be made regarding the impact of a reduction of the rate of return assumption by 0.25% per annum for the valuation of benefit liabilities at 2015 year-end:

- The liabilities increase at the median level by \$26M at year-end 2015, increasing to \$37M in 2024.
- At year-end 2015, the funding percentage is 3% lower, but that difference is eliminated within 5 years.
- The average amount of surplus distribution is lower from 2016 to 2019, but the difference is essentially non-existent after 2019.
- The probabilities of surplus distributions increase slightly after 2016.
- The probabilities for the WCB to have to increase the premium rate (funding percentage below 103%) are not significantly changed during the next 10 years (an increase from 1.3% to 1.4%).

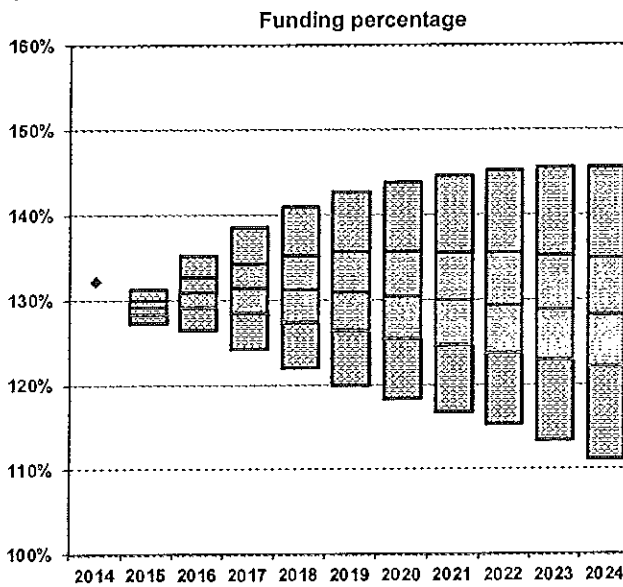
In summary, the financial risks of the WCB are not materially affected by a reduction of 0.25% in the discount rate at year-end 2015.

The following table presents some probabilities of surplus distributions and special levies for each of the years in the projection period, as well as statistics on the average amounts when they occur:

Table 8.2 - Statistics and probabilities on surplus distributions and special levies - Scenario 2

Statistics	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Probability to have a:										
Surplus distribution	100.0%	99.9%	98.5%	95.1%	91.1%	87.5%	84.2%	81.2%	78.9%	75.9%
Special levy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%	0.7%	1.2%
No surplus or levy	0.0%	0.1%	1.5%	4.9%	8.9%	12.4%	15.6%	18.5%	20.4%	22.9%
Average amount in millions of dollars (when it occurs) of:										
Surplus distribution	56	68	75	80	85	89	93	98	102	102
Special levy	0	0	0	0	0	12	13	15	18	20
Average amount expressed per \$100 of assessable payroll (when it occurs) of:										
Surplus distribution	0.25	0.29	0.31	0.31	0.32	0.32	0.33	0.33	0.33	0.33
Special levy	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.05	0.06	0.06
Probability that, over a certain time horizon:					3 years 2016-2018		5 years 2016-2020		10 years 2016-2025	
A surplus distribution will be made every year					98.4%		88.9%		60.4%	
A special levy will be done in any year					0.0%		0.0%		1.4%	

The projected statistical distribution of the funding percentage at each year-end during the projection period, as well as some probabilities that it remains above or falls below certain levels over different time horizons:



Level	Time Horizon		
	3 years 2015-2017	5 years 2015-2019	10 years 2015-2024
Probability that the Funding Percentage remains above a certain level every year over a certain time horizon:			
125%	92.1%	74.5%	41.2%
120%	99.5%	94.2%	72.4%
105%	100.0%	100.0%	98.0%
100%	100.0%	100.0%	99.3%
Probability that the Funding Percentage decreases below a certain level at least once over a certain time horizon:			
125%	7.9%	25.5%	58.8%
120%	0.5%	5.8%	27.6%
105%	0.0%	0.0%	2.0%
100%	0.0%	0.0%	0.7%

5th Percentile	132%	131%	135%	139%	141%	143%	144%	145%	145%	146%	146%
25th Percentile	132%	130%	133%	134%	135%	136%	136%	136%	135%	135%	
50th Percentile	132%	129%	131%	131%	131%	130%	130%	129%	129%	128%	
75th Percentile	132%	128%	129%	129%	127%	126%	125%	124%	123%	122%	
95th Percentile	132%	127%	127%	124%	122%	120%	118%	117%	115%	113%	111%

Scenario 3 - Eliminating the reserves but increasing the funding range by 2%:

As at December 31, 2014, in accordance with its funding policy, the WCB maintains two reserves:

- The Disaster reserve, at 2% of the benefit liabilities, which is established to meet the requirements of the Act with respect to disasters and has two components: one for less severe disasters that meet the threshold outlined in policy and one for rare but very severe disasters. It stands at \$23.038M at year-end 2014.
- The Second injury and re-employment reserve, at 1% of the benefit liabilities, provides employers with cost relief on claims that were attributed to an earlier injury and to assist in facilitating return to work through retraining. It stands at \$11.519M at year-end 2014.

Both of these reserves provide employers with cost relief on claims that meet certain criteria.

The following table presents the allocation for cost relief for employers over the last four years and the proportion to all claim payments made during the year, excluding the claim administration payments:

Table 7.2 - Allocations for cost relief for employers

Year	Disaster reserve		Second injury and re-employment reserve		Claim payments made, excluding administration (in \$M)
	Amount (in \$M)	% of claim payments	Amount (in \$M)	% of claim payments	
2011	13.598	6.9%	15.309	7.8%	195.790
2012	10.817	5.6%	13.597	7.0%	193.561
2013	14.556	7.6%	32.379	16.8%	192.293
2014	13.815	7.4%	20.390	10.8%	187.930
Average		6.9%		10.6%	

The Disaster reserve covers about 21 months of cost relief, while the Second injury and re-employment reserve covers less than 7 months of cost relief.

The benefit liabilities represent an actuarially determined provision for all future benefits payments and administration costs resulting from work-related injuries that occurred on or before the valuation date, as well as past exposures to known occupational diseases that will be diagnosed in the future. The amount of benefit liabilities includes also a provision for the future costs for claims that will be subject to cost relief. Consequently, the reserves do not represent a liability for the WCB.

We have not studied the circumstances that give rise to cost relief for employers and these should be maintained. However they could be determined through a cost relief policy, instead of a policy regarding the establishment of reserves.

In accordance with the funding policy, the current level of these reserves is 3% of benefit liabilities in total and the funding percentage is determined in considering these reserves. Should the reserves be eliminated, the funding range would in theory have to be increased by 3% to represent the same level of protection against risks and uncertainties for the WCB.

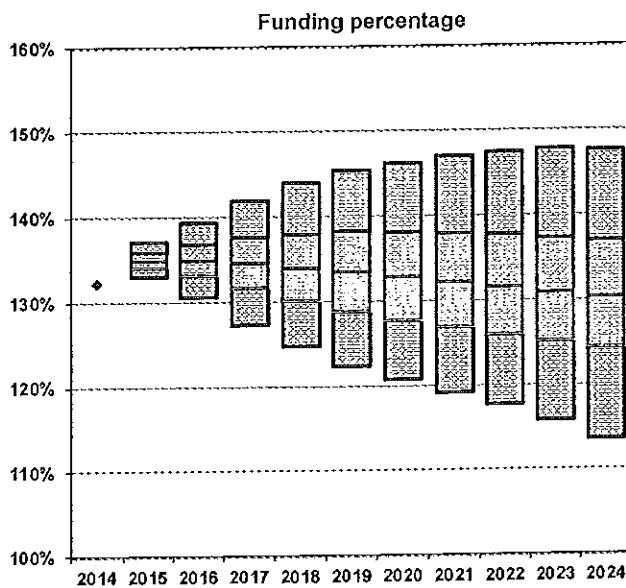
We have evaluated the impact of eliminating the reserves but increasing the funding range by 2% instead of 3%. The results are shown on next page.

The following table presents some probabilities of surplus distributions and special levies (when the funding percentage falls outside the 105% to 124% range), as well as statistics on the average amounts when they occur:

Table 8.3 - Statistics and probabilities on surplus distributions and special levies - Scenario 3

Statistics	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Probability to have a:										
Surplus distribution	100.0%	100.0%	99.1%	96.3%	92.0%	88.3%	84.9%	82.1%	79.4%	76.7%
Special levy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.6%	1.1%
No surplus or levy	0.0%	0.0%	1.0%	3.8%	8.0%	11.7%	15.0%	17.6%	20.0%	22.2%
Average amount in millions of dollars (when it occurs) of:										
Surplus distribution	77	80	80	82	85	89	93	96	100	100
Special levy	0	0	0	0	0	12	13	15	17	19
Average amount expressed per \$100 of assessable payroll (when it occurs) of:										
Surplus distribution	0.35	0.34	0.33	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Special levy	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.05	0.06	0.06
Probability that, over a certain time horizon:					3 years 2016-2018		5 years 2016-2020		10 years 2016-2025	
A surplus distribution will be made every year					99.1%		90.5%		61.9%	
A special levy will be done in any year					0.0%		0.0%		1.3%	

The projected statistical distribution of the funding percentage at each year-end during the projection period, as well as some probabilities that it remains above or falls below certain levels over different time horizons:



5th Percentile	132%	137%	139%	142%	144%	145%	146%	147%	147%	148%	148%
25th Percentile	132%	136%	137%	138%	138%	138%	138%	138%	137%	137%	137%
50th Percentile	132%	135%	135%	135%	134%	133%	133%	132%	132%	131%	130%
75th Percentile	132%	134%	133%	132%	130%	129%	128%	127%	126%	126%	124%
95th Percentile	132%	133%	131%	127%	125%	122%	121%	119%	118%	116%	114%

Table of probabilities

Level	Time Horizon		
	3 years 2015-2017	5 years 2015-2019	10 years 2015-2024
Probability that the Funding Percentage remains above a certain level every year over a certain time horizon:			
125%	98.5%	87.4%	55.9%
120%	100.0%	97.8%	82.5%
105%	100.0%	100.0%	98.7%
100%	100.0%	100.0%	99.6%
Probability that the Funding Percentage decreases below a certain level at least once over a certain time horizon:			
125%	1.6%	12.6%	44.1%
120%	0.0%	2.3%	17.5%
105%	0.0%	0.0%	1.3%
100%	0.0%	0.0%	0.4%

In comparing results with the base scenario (scenario 1 in Section 5), the following observations can be made regarding the impact of eliminating the reserves but increasing the funding range by 2%:

- At year-end 2015, the funding percentage is 3% higher at the median level, and that difference is stable at 2% by 2017.
- The probabilities that the funding percentage would fall below a certain level are reduced.
- The average amount of surplus distribution is higher from 2016 to 2019, but the difference is essentially non-existent after 2019.
- The probabilities of surplus distributions increase slightly after 2017.
- The probabilities for the WCB to have to increase the premium rate (funding percentage below 105%) are not changed during the next 10 years (stable at 1.3%).

In summary, the financial risks of the WCB are not materially affected by eliminating the reserves but increasing the funding range by 2%.

As the amount of benefit liabilities includes the future costs for claims that will be subject to cost relief, the Disaster and Second injury and re-employment reserves should be eliminated, and the circumstances that give rise to cost relief for employers should be maintained and determined through a cost relief policy. To maintain a similar level of protection against risks and uncertainties for the WCB, the funding range should be increased by 2% to 107% to 122%.

Section 9: Impact of potential change to accounting basis

The WCB prepares its financial statements under International Financial Reporting Standards (IFRS) and a potential accounting change may have significant implications for WCB's results in the future. That change concerns IFRS 4 on insurance contracts and more specifically the measurement of the benefit liabilities, where the rate used to discount claim benefit cash flows would reflect market rates and cash flows could include a risk adjustment.

The final standard has not yet been released; we estimate that the effective date would possibly be in 2020, assuming a release in 2016 and a minimum period of three years before implementation.

Based on our understanding of the revised Exposure Draft published in June 2013, the discount rate would be determined as the risk free rate plus a liquidity premium using a yield curve. Based on our estimation of the duration of WCB benefit liabilities, which stands between 8 and 9 years as at December 31, 2014, we have estimated the impact of valuing the benefit liabilities using the current 8.5-year Government of Canada bond yield, plus a 0.50% rate adjustment for the liquidity premium, at each future year-end, instead of a fixed long term assumption as it is currently done.

The risk adjustment deals with the risks inherent in the future cash flows, such as mortality, disability, health care utilization, etc. The methodology to be used for determining the risk adjustment is very unclear at this point. While the risk adjustment would not typically be made through the discount rate, for our projections we have assumed a 0.50% reduction to the discount rate in order to determine the impact of the risk adjustment.

We have prepared projections of WCB financial results under scenario 4, which is similar to Scenario 1, but assuming implementation of the use of a market discount rate in 2020. We have used a discount rate corresponding to the risk free rate, plus a 0.50% rate adjustment for the liquidity premium, minus a 0.50% adjustment to determine the impact of the risk adjustment.

The impact of the risk adjustment is an increase to the liabilities. We strongly emphasize that this is only a representative value of the risk adjustment as the actual modelling has not yet been developed and the appropriate level for the risk adjustment will need to be determined. The approach taken is conservative.

Some observations and comments on the projection results assuming implementation of the use of a market discount rate in 2020 instead of a fixed long term assumption are as follows:

- The discount rate assumption used for the valuation of benefit liabilities would vary every year, starting in 2020.
- Assets would be affected only marginally by this change.
- The use of a market-based discount rate as compared to the use of a long term fixed discount rate increases the volatility of the liabilities.
- The liabilities would increase on implementation of the revised standard, as the real discount rate would reduce from the current 3.0% assumption to about 2% (equivalent to the risk free rate). At the median level, the liability increase will be \$186 million in 2020, decreasing to \$142 million in 2024 with the projected increase to the discount rate.
- This change would result in an approximate 16% drop in the funding percentage and in the FMV asset/liability ratio, which is based on the market value of assets, at the median level in 2020. This reduction decreases over time, and at the end of the projection period, the funding percentage and the FMV asset/liability ratio are only about 2% lower than under the current accounting basis at the median level.

- With the volatility of liabilities adding to the volatility of assets, the FMV asset/liability ratio would be more volatile, but not significantly, because of some synchronization of movements between assets and liabilities. For example, the spread between the 25th and 75th percentiles would only increase in 2024 by 3%, from 33% to 36%; the spread between the 5th and 95th percentiles is increasing by 7%, from 83% to 90%.
- As the funding percentage is not based on the market value of assets, moving to a market-related discount rate would increase significantly the volatility of the funding percentage. For example, the spread between the 25th and 75th percentiles would increase in 2024 by 8% and the spread between the 5th and 95th percentiles is increasing 17%.
- The risk that the FMV asset/liability ratio decreases below 100% would increase with a market discount rate.
- The impact on the average required premium rate is estimated initially at about \$0.07 per \$100 of assessable payroll, decreasing to \$0.04 at the end of the projection period.

The following table presents some probabilities of surplus distributions and special levies (when the funding percentage falls outside the 103% to 122% range), as well as statistics on the average amounts when they occur:

Table 9.1 - Statistics and probabilities on surplus distributions and special levies - Scenario 4

Statistics	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Probability to have a:										
Surplus distribution	100.0%	100.0%	98.9%	96.0%	91.8%	33.1%	46.1%	54.9%	59.0%	61.7%
Special levy	0.0%	0.0%	0.0%	0.0%	0.0%	18.0%	11.1%	8.5%	7.4%	6.5%
No surplus or levy	0.0%	0.0%	1.1%	4.0%	8.2%	48.9%	42.8%	36.6%	33.6%	31.7%
Average amount in millions of dollars (when it occurs) of:										
Surplus distribution	71	77	79	82	85	94	103	115	126	128
Special levy	0	0	0	0	0	31	30	32	32	35
Average amount expressed per \$100 of assessable payroll (when it occurs) of:										
Surplus distribution	0.32	0.33	0.32	0.32	0.32	0.33	0.35	0.38	0.40	0.41
Special levy	0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.11	0.10	0.11
Probability that, over a certain time horizon:					3 years 2016-2018		6 years 2016-2020		10 years 2016-2025	
A surplus distribution will be made every year					98.9%		90.1%		16.5%	
A special levy will be done in any year					0.0%		0.0%		26.8%	

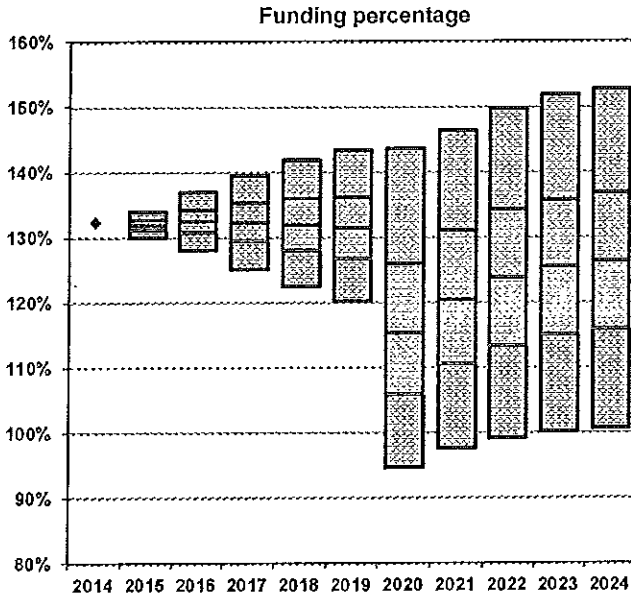
The implementation of an accounting change to IFRS 4 on insurance contracts in 2020 could influence negatively the funded position of the WCB. The WCB should monitor closely this potential change.

Using the market value of assets in connection with liabilities valued on a market-related basis in the funding policy would be consistent. In addition, preliminary work indicates that with a policy based on the FMV asset/liability ratio instead of the funding percentage, as it is currently the case, could:

- Reduce the volatility of the FMV asset/liability ratio of the WCB.
- Decrease the probability for the WCB to be unfunded (the liabilities to exceed the assets).

We recommend that the WCB review its funding policy and consider the treatment of unrealized gains and losses on investments as well as the impact of a market related rate of return on the benefit liabilities and claim cost expense.

The following illustrates the projected statistical distribution of the funding percentage at each year-end during the projection period, and presents some probabilities for Scenario 4:

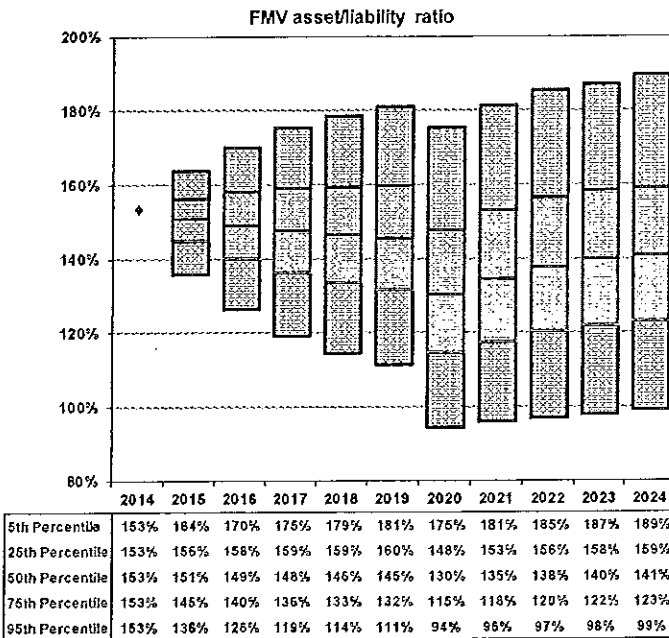


5th Percentile	132%	134%	137%	140%	142%	143%	143%	146%	150%	152%	153%
25th Percentile	132%	133%	134%	135%	136%	136%	126%	131%	134%	136%	137%
50th Percentile	132%	132%	132%	132%	132%	131%	115%	120%	124%	126%	126%
75th Percentile	132%	131%	131%	129%	128%	127%	106%	111%	113%	115%	116%
95th Percentile	132%	130%	128%	125%	123%	120%	95%	98%	99%	100%	101%

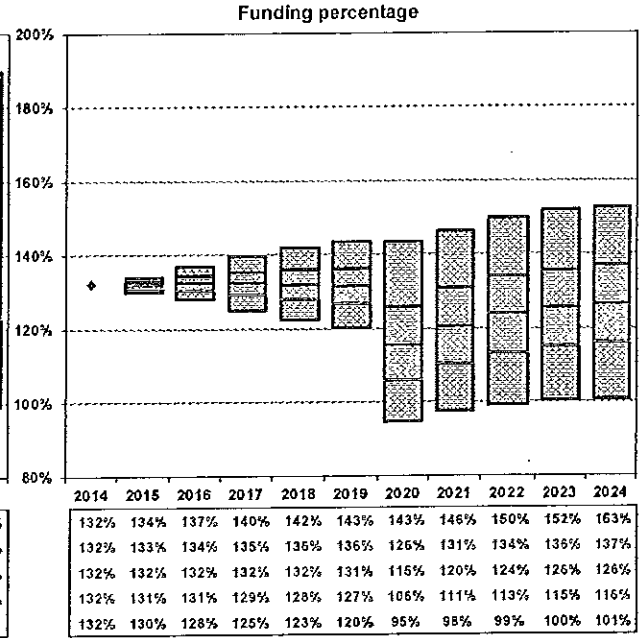
Table of probabilities

Level	Time Horizon		
	3 years 2015-2017	5 years 2015-2019	10 years 2015-2024
Probability that the Funding Percentage remains above a certain level every year over a certain time horizon:			
125%	94.8%	77.8%	10.0%
120%	99.7%	94.8%	22.0%
105%	100.0%	100.0%	68.0%
100%	100.0%	100.0%	80.7%
Probability that the Funding Percentage decreases below a certain level at least once over a certain time horizon:			
125%	5.2%	22.2%	90.0%
120%	0.3%	5.2%	78.0%
105%	0.0%	0.0%	32.0%
100%	0.0%	0.0%	19.4%

The projected statistical distribution of the FMV asset/liability ratio, which is based on the market value of assets, is compared to the distribution of the funding percentage at each year-end during the projection period:



5th Percentile	153%	164%	170%	175%	179%	181%	175%	181%	185%	187%	189%
25th Percentile	153%	156%	158%	159%	159%	160%	148%	153%	156%	158%	159%
50th Percentile	153%	151%	149%	148%	146%	145%	130%	135%	138%	140%	141%
75th Percentile	153%	146%	140%	136%	133%	132%	115%	118%	120%	122%	123%
95th Percentile	153%	136%	126%	119%	114%	111%	94%	96%	97%	98%	99%



5th Percentile	132%	134%	137%	140%	142%	143%	143%	146%	150%	152%	153%
25th Percentile	132%	133%	134%	135%	136%	136%	126%	131%	134%	136%	137%
50th Percentile	132%	132%	132%	132%	132%	131%	115%	120%	124%	126%	126%
75th Percentile	132%	131%	131%	129%	128%	127%	106%	111%	113%	115%	116%
95th Percentile	132%	130%	128%	125%	123%	120%	95%	98%	99%	100%	101%

Section 10: Conclusion

We have prepared the current asset liability study to illustrate the financial risks inherent at the WCB and their impact on the long term funding of the board and on the premiums that could be paid by Saskatchewan employers.

Numerous graphs, probabilities and statistics have been presented throughout this report in order to quantify the financial risks of the WCB and to allow the various stakeholders to visualize the possible evolution of financial parameters which may be affected by various financial strategies (e.g. long term asset mix and funding policy) and the dynamics of the interaction among these strategies.

The risks that could impact the financial position of the WCB and that have been considered include the risks of the financial markets, as well as the risks on the claim costs and WCB liabilities, such as unanticipated price inflation and potential accounting changes.

The following probabilities illustrate the risks at the WCB assuming an average premium rate maintained at \$1.46 per \$100 of assessable payroll throughout the projection period and a surplus distribution at \$78.9M in 2015 and at 50% of the excess over the funding target of 120% thereafter:

- The risk to the WCB of being unfunded according to WCB's funding policy (the funding percentage falling below 105%) at least once over the next five years is 0.0%, and 1.8% over the next 10 years. Based on the FMV asset/liability ratio, i.e. that the liabilities exceed the assets valued at market, the risk for WCB to be unfunded at least once over the next five years is 1.8%, and 6.5% over the next 10 years.
- Even with no reduction in the average premium rate, there is a 1.3% chance that the funding percentage will fall below the 103% level at least once over the next 10 years and that a premium rate increase will be made.
- Within the next 10 years, there is a 61.6% chance that the funding percentage will remain above the 122% level and that a surplus distribution will be made every year.

With a surplus distribution at \$140.9M in 2015 and at 100% of the excess over the funding target of 120% thereafter, these probabilities are as follows:

- The risk to the WCB of being unfunded according to WCB's funding policy (the funding percentage falling below 105%) at least once over the next five years is 0.1%, and 3.1% over the next 10 years. Based on the FMV asset/liability ratio, the risk for WCB to be unfunded at least once over the next five years is 2.5%, and 8.2% over the next 10 years.
- There is a 2.1% chance that the funding percentage will fall below the 103% level at least once over the next 10 years and that a premium rate increase will be made.
- Within the next 10 years, there is a 21.1% chance that the funding percentage will remain above the 122% level and that a surplus distribution will be made every year.

The financial strategies of the WCB, including the assumptions used to value the benefit liabilities, the basis for the determination of the average premium rate and the parameters of the funding policy, reflect a prudent approach, in line with its risk tolerance.

Recent changes to the long term asset mix policy will have the intended objective of reducing volatility of the portfolio returns while maintaining an expected rate of return equivalent to the previous asset mix. The revised asset allocation was utilized in the projections and does not appear to impact the WCB's ability to fund its obligations.

Based on our findings, we recommend that:

1. The WCB review its rate setting model for the determination of the premium requirements.
2. The WCB determine the percentage of surplus distributions in considering its risk tolerance level, one possibility being to set initially the surplus distribution at \$78.9M in 2015 and at 50% of the excess over the funding target of 120% thereafter, and to finalize this level once the study of the rate setting model has been completed.
3. The Disaster and Second injury and re-employment reserves be eliminated, and the circumstances that give rise to cost relief for employers be maintained and determined through a cost relief policy, and the funding range be increased by 2% to 107% to 122%.
4. The WCB review its funding policy and consider the treatment of unrealized gains and losses on investments as well as the impact of a market related rate of return on the benefit liabilities and claim cost expense.

In 2013 and 2014, several elements had a significant impact on the liabilities of the WCB:

- Legislative changes to the Workers' Compensation Act effective January 1, 2014, which included annual increases to the future Maximum Insurable Wage Rate for existing claims;
- Provision of a liability for latent occupational diseases;
- Reduction of the discount rate used for the actuarial valuation of the benefit liabilities to reflect lower expectations in long term investment returns.

As the WCB was able to absorb these additional costs without increasing premiums and to remain fully funded, it is likely that the average premium rate will decrease in the near future to reflect the reduction in the number of claims and in claim costs in recent years.

Finally, the WCB should continue monitoring closely its funded position and prepare regularly an asset liability study with proper consideration of the overall risk configuration to be managed in a workers' compensation environment to ascertain that the financial strategies are consistent with the WCB's views.

We will be pleased to discuss this report with you at your convenience.

Respectfully submitted,



Richard Larouche, FSA, FCIA

June 15, 2015